



1.Circular (11/2021)

## PANGEO AUSTRIA 2022

Beyond Earth Science Frontiers

**PANGEO AUSTRIA 2022\***, to be held in Leoben from 10<sup>th</sup> to 13<sup>th</sup> September 2022, will offer a broad scientific program and invites contributors from all earth science disciplines and institutions. Following up on the last PANGEO held in Leoben in 2010, the conference will furthermore emphasize applied aspects related to engineering geology and the utilization of raw materials and geoenery.

Biennially organized by one of the five national universities in the field of geosciences, the PANGEO represents an important cornerstone for networking between industry and academia, the promotion of interdisciplinary activities, as well as the support of young academics in geosciences and related fields.

\*postponed PANGEO 2020 conference

### Conference Convenor

Department for Applied Geosciences and Geophysics  
Montanuniversitaet Leoben  
Peter-Tunner-Straße 5  
8700 Leoben

### Location and Date

Montanuniversitaet Leoben  
Franz-Josef-Straße 18  
8700 Leoben

Date: 10 - 13/09/2022

### Conference Language(s)

English/German

## Preliminary Conference Program

<b>Sat 10/09/2022</b>	Pre-Conference Excursions (Ex 1/2) & Icebreaker
<b>Sun 11/09/2022</b>	Opening*, Technical Sessions and Plenary Lectures, Honours
<b>Mon 12/09/2022</b>	Technical Sessions, Public Evening Lecture**, Conference Dinner
<b>Tue 13/09/2022</b>	Technical Sessions (half-day), Excursion (half-day; Ex 3)
<b>Wed 14/09/2022</b>	Post-Conference Excursion (Ex 4)

## Registration and Abstracts

**Registration** will be open from **01/02/2022**. Further information will be posted in the second circular (02/2022).

**Abstract deadline: 30/05/2022**

## Registration fees

	<b>until 30/06/2022</b>	<b>after 30/06/2022</b>
<b>Members</b>	220,-	260,-
<b>Non-members</b>	270,-	300,-
<b>Student members</b>	120,-	160,-
<b>Student non-members</b>	160,-	200,-

This covers access to all technical sessions, a printed conference program and a digital book of abstracts, coffee breaks, icebreaker, conference dinner, as well as entrance to the public lecture and Monday evening program.

Student members of the Austrian Geological Society may be eligible for travel and participation grants. For details, please contact:

[oeegg@geologie.ac.at](mailto:oeegg@geologie.ac.at)

**For further details, please contact:**

[pangeo@unileoben.ac.at](mailto:pangeo@unileoben.ac.at)

or visit <http://pangeo.unileoben.ac.at>

## Preliminary Session Program

(may be subject to changes)

**Geo-energy** (J. Goldbrunner, R. Sachsenhofer, G. Tari)

**Economic Geology** (F. Melcher, H. Paulick)

**Reservoir Engineering Trends and Challenges** (H. Ott, R. Kharrat)

**Advanced Structural and Geochemical Characterization of Geomaterials** (D. Misch, P. Gopon, B. Rupprecht)

**Engineering Geology and Geohazards** (M. Villeneuve, S. Kieffer)

**Hydrogeology and Hydrochemistry** (S. Birk, S. Hilberg)

**Aspects of Seismology** (W. Lenhardt, G. Bokelmann)

**Geophysics** (F. Bleibinhaus, R. Scholger)

**Structural Geology in Academics and Industries** (B. Grasemann, V. Schuller)

**Earth Surface Dynamics** (J.-C. Otto, R. Pöpl, K. von Elverfeldt)

**Regional Geology and Geodynamics** (G. Rantitsch, R. Schuster)

**Applied Mineralogy** (J. Raith, M. Dietzel)

**Igneous and Metamorphic Petrology** (B. Huet, P. Tropper)

**Integrated Stratigraphy** (W. Piller, C. Iglseider)

**Sedimentology/Stratigraphy** (D. Le Heron, C. Kettler)

**IGCP 710: Western Tethys meets Eastern Tethys** (M. Krobicki, H.-J. Gawlick)

**Young Sediments** (S. Neuhuber, M. Wagneich, B. Salcher)

**Geoscience and Archeology** (W. Prochaska, E. Draganits)

**Paleontology** (M. Harzhauser, M. Gross)

**Landesgeologie im Dienste der Bevölkerung** (M. Konrad)

**Poster Session** (P. Gopon, X. Shi)

## Preliminary Field Trip and Excursion Program

(may be subject to changes)

**Excursion 1:** Sat 10/09/2022 (pre-conference)

[Erzberg/Zentrum am Berg](#) (max. 24 participants)

(F. Melcher, R. Galler)

Iron ore has been mined at the “Steirischer Erzberg” for more than 1300 years. Today, VA Erzberg produces about 3 million tonnes of siderite concentrate annually. The metallogenetic evolution of this giant ore system continues to be a matter of debate. During the excursion, we will visit key outcrops in the active mine area to discuss the evolution of the mineralization in the framework of the regional geology of the Erzberg. In addition, we will visit “Zentrum am Berg”, the world’s largest tunneling research center.

**Excursion 2:** Sat 10/09/2022 (pre-conference)

[Geology of the Aflenz Basin](#) (max. 30 participants)

(G. Rantitsch)

Details will follow soon.

**Excursion 3:** Tue 13/09/2022 (afternoon)

[Styromag Magnesite \(Oberdorf\)](#) (max. 24 participants)

(P. Kroissenbrunner, H. Mali)

The Upper Austroalpine nappe system of Austria hosts several magnesite deposits of the Veitsch type of which seven deposits are still in mining operation. Metasomatic deposits of the Veitsch type are hosted by Palaeozoic carbonates, form coarsely crystalline stratiform lenses, layers, and irregular bodies. All of them are overprinted by Alpine metamorphism. Pinolitic magnesite structure, several generations of dolomite and secondary talc formation are some characteristics of these deposits. The excursion will visit one of the deposits mined by Styromag GmbH at Oberdorf, Wald or Hohentauern which are hosted by the Carboniferous Veitsch nappe of the Austroalpine Veitsch-Silbersberg nappe system.

**Excursion 4:** Wed 14/09/2022 (post-conference)

[Spodumene \(Lithium\) Project Wolfsberg](#) (max. 30 participants)

(T. Unterweissacher, H. Mali)

European Lithium’s Wolfsberg Project is targeting spodumene-bearing pegmatites within the Koralpe-Wölz nappe system. The company successfully completed a positive pre-feasibility study (PFS) in Q2 2018. The PFS was based only on current measured and indicated resources of 6.3 Mt at 1.17% Li<sub>2</sub>O. Additional exploration work within the framework of a detailed feasibility study revealed the available resources more realistically. The excursion participants will have the possibility to visit the underground exploration adit as well as the core shed within the city of Wolfsberg.

# Framework program

## Opening key-note

Mike Simmons (Halliburton, UK)

### *Who needs geoscientists? Career options in a time of energy transition*

Historically, many geoscientists have been employed in searching for and extracting resources, either hydrocarbons, minerals, or water. Concerns about the environmental sustainability of geological vocations appear to be reducing the number of students studying geoscience, at least in many developed western nations. What then are the options for those wishing to pursue a career in geology? The need for geoscientists is paramount in a time of energy transition, be that in traditional spheres of employment or in what may be termed “sustainable geoscience,” although these are not mutually exclusive.

Growing global population and economic growth are likely to drive an ongoing rise in energy demand as the century progresses. Despite the growth in renewables, the energy mix for the next few decades is likely to continue to include a significant contribution from natural gas, oil, and, to a lesser extent, coal. The challenge is to be as efficient as possible in the exploration for these resources and to locate those with the lowest carbon footprint created by their exploitation (“green oil”). This means a focus on reservoir geology so that well placements and trajectories are optimized.

These skills will also allow geoscientists to contribute to solutions that may help achieve carbon neutrality targets. Carbon capture and sequestration (CCS) is likely to grow in importance and requires geoscientists who can model subsurface repositories and the behaviour of fluids injected into those repositories. Other avenues exist in engineering geology in relation to the challenges of installing new wind farms and for the construction of measures to mitigate the impacts of climate change that are already inevitable. A growing number of geologists are engaged in investigating the potential of geothermal energy.

The global improvement of living standards and society’s ongoing appetite for technology places a demand on the supply of raw materials (e.g., copper and rare earth elements) that could quickly outpace our known reserves. Geoscientists are needed to locate new deposits, including those in the oceans. As the global population continues to expand towards 11 billion people, water supply is likely to be one of the major challenges society faces as the century progresses. Hydrogeologists are needed to locate and manage aquifers as climate evolves and to protect them from pollutants.

Academic geologists can provide support to all of these industrial activities, but there is also much fundamental research to be carried out. It is now over 50 years since the advent of the last major paradigm shift in geoscience – plate tectonics – another is surely overdue. We still have much to learn about processes operating in and on Earth today and in the past, and the evolution of life. Holistic Earth systems science approaches can be useful, for example, by using the past to model climate evolution. One exciting avenue is the impact of the digital revolution on geoscience. Data science is providing new scientific insights and is transforming all resource industries, contributing to efficiency and associated environmental benefits. The future geoscientist needs to be technology and data science literate, but with an underpinning of sound geoscience knowledge. We do not know where this exciting phase of technology and data science change will take geoscience, but it is clear that geoscientists will be needed to support society as it enters a period of unprecedented change.

## **Public Monday evening lecture**

Kurt Stüwe (Universität Graz)

### *Zur Geschichte der Steirischen Landschaft*

Die Landschaft der Steiermark mit ihren Bergen, Tälern und Ebenen formte sich zwar über geologische Zeiträume, aber dennoch gab es erstaunlich große Veränderungen auch innerhalb der relativ kurzen Entwicklungszeit der Hominiden in den letzten fünf Millionen Jahren. Die ursprünglich über den Semmering ins Wiener Becken fließende Mur änderte ihren Verlauf allmählich nach Graz, die Enns floss noch über den Schoberpass in die Mur, viele der steirischen Vulkane existierten noch nicht und der Schöckl oder der Hochschwab waren noch keine Berge, sondern erhoben sich kaum merklich über das flach-wellige Hügelland. Der Vortrag illustriert Aspekte dieser verblüffenden Landschaftsentwicklung mittels spektakulärer Luftaufnahmen.

## Patronage

Austrian Geological Society (ÖGG)  
<https://geologie.or.at>



Austrian Geophysical Society (AGS)  
<https://www.geophysik.at/>



Austrian Mineralogical Society (ÖMG)  
<https://www.univie.ac.at/OeMG/>



Austrian Paleontological Society (ÖPG)  
[fossils-of-austria.at](https://fossils-of-austria.at)



Austrian Hydrogeological Society (ÖVH)  
<https://www.oevh.org>



**Pangeo.unileoben.ac.at**  
**pangeo@unileoben.ac.at**