



**17<sup>th</sup> Biennial SGA Meeting**  
ETH Zurich, Switzerland  
August 28 – September 1

# Conference Programme



# Going Further Together

Teck is one of Canada's leading mining companies, focused on providing the critical minerals essential to building a better quality of life for people around the globe, including copper and zinc. Our expertise, technological advancements and commitment to sustainability have made us a partner of choice for exploration companies around the world.

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## Welcome to SGA2023, Welcome to Zürich,

Mineral Deposits in a Changing World. In the context of an undeniable and threatening climate change, a suite of financial crisis, global sanitary challenges, and geopolitical tensions have stamped in a snowball effect the start of the XXI<sup>st</sup> century. Yet, we contend that an optimistic and united approach to lead the "Green New Deal" is possible. Thus, we have prepared a conference program comprising (1) the presentation of the latest findings in ore deposit and critical material research, (2) invited talks by plenary speakers to bring concrete insights and inspiring solutions for the challenges our economies need to face and solve in our acute awareness of climate change mitigation, and a reasoned exploitation of resources with optimal management of the environment, and (3) lively and enthusiastic scientific and social exchange between all participants from early-career researchers and students to high-ranking industry delegates and government agency representatives.

We wish you an instructive and rewarding 17<sup>th</sup> Biennial Meeting of the SGA.

## Your Local Organizing Committee

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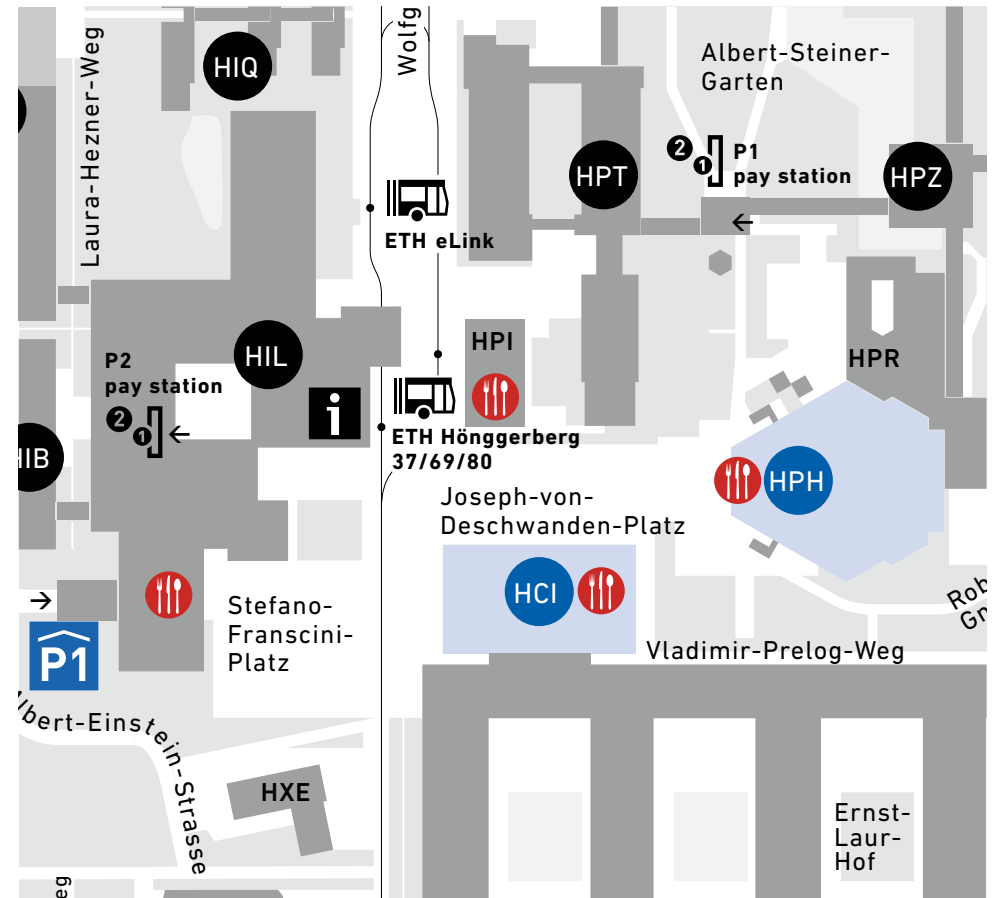





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# Map of the venue

Guest wifi network 'public' or 'public-5'



-  catering options
-  **HPH Building**  
Sessions  
Plenary talks  
Poster sessions
-  **HCI Building**  
Sessions

## Plenary talks



**Sophia Kalantzakos**

Tuesday August 29<sup>th</sup>, 9:40 – 10:40 / Room HPH G1

### **The securitization of the green and digital transitions: Europe's distinct response**

The decarbonization of the global economy in response to the climate crisis and the fourth industrial revolution currently underway have been subsumed by geopolitics that remain anchored in realist power struggles, now revolving around Sino-American hyper-

competition. The Russian invasion of Ukraine further undermined interdependence and prompted unprecedented levels of economic statecraft. Geopolitical realignments have turned into a battle for the leadership of the tech-imperium while access to indispensable minerals for a net zero future has become more securitized. Professor Kalantzakos will provide insight into this latest manifestation of resource competition. She will analyse how the European Union pushes back against bipolar geopolitics by utilizing its normative, economic, and regulatory power and strong networks of global institutional relations to maintain a competitive but working relationship with China. She will conclude by pointing to ways by which Europe may help broker broader global institutional collaboration to ensure that decarbonization is for all, not just for the few.

### **Biography**

Prof. Kalantzakos is Global Distinguished Professor in Environmental Studies and Public Policy at New York University Abu Dhabi. Her research centres on the geopolitics of critical minerals, the transition to a net zero future, and the fourth industrial revolution. Her work, in particular, examines how resource competition in an era of fraught geopolitics has tilted the balance toward more securitized assessments of global interdependence. Moreover, she examines China's global aspirations manifested in the belt and road initiative, Europe's reckoning with a seismic push against both its normative and economic power, and the US's re-evaluation of its leadership role in the global order. Her most recent publications include *China and the Geopolitics of Rare Earths* (Oxford University Press, 2018; rev.2021) and *The EU, US, and China Tackling Climate Change: Policies and Alliances for the Anthropocene* (Routledge, 2017).



**Simon P. Michaux**

Tuesday August 29<sup>th</sup>, 12:00 – 13:00 / Room HPH G1

### **A world with less CO<sub>2</sub> has much more mining**

A study was conducted to examine what is going to be required to fully phase out fossil fuels as an energy source and replace the entire existing system with renewable energy sources and transportation. This is done by estimating what it would be required to replace the entire fossil fuel system in 2018, for the US, Europe,

China, and global economies. This report examines the size and scope of the existing transport fleet, and scope of fossil fuel industrial actions.

To replace fossil fuelled ICE vehicles, Electric Vehicles, H<sub>2</sub> cell vehicles for cars, trucks, rail, and maritime shipping was examined. Fossil fuels consumption for electricity generation, building heating and production of steel were all examined for replacement. Calculations reported here suggest that the total additional non-fossil fuel electrical power annual capacity to be added to the global grid will need to be around 36 007.9 TWh. To phase out fossil fuel power generation, solar, wind, hydro, biomass, geothermal and nuclear were all examined. If the same non-fossil fuel energy mix as that reported in 2018 is assumed, then this translates into an extra 586 032 new power plants will be needed to be constructed and commissioned.

The quantity of metals to manufacture the first generation of renewable technology units (wind turbines, solar panels, EV's etc.) to completely phase out fossil fuels. This metal quantities were compared to mining production and mineral reserves.

Conclusions were drawn after comparing all these different aspects. It was proposed that the phasing out of fossil fuels will not go to plan.

### **Biography**

Simon Michaud is an Associate Professor of geometallurgy at the Geological Survey of Finland (GTK) in the Circular Economy Solutions Unit. He holds a Bach. App. Sc in Physics and Geology, and a PhD in Mining Engineering from JKURC University of Queensland. He previously worked 18 years in the Australian mining industry in research and development, 12 months at Ausenco in the private sector, 3 years in Belgium at the University of Liège researching Circular Economy and industrial recycling. In Finland, he has been working in the Mineral Intelligence unit of GTK, before joining the Circular Economy Solutions Unit where mineral processing and geometallurgy solutions are being developed.

His long-term objectives include the development and transformation of the Circular Economy, into a more practical system for the industrial ecosystem to navigate the twin challenges of the scarcity of technology minerals and the transitioning away from fossil fuels.



Conclusions were drawn after comparing all these different aspects. It was proposed that the phasing out of fossil fuels will not go to plan.



### **Kerry Turnock**

Wednesday August 30<sup>th</sup>, 12:00 – 13:00 / Room HPH G1

#### **Geoscience: Unlocking more than mineral resources across the mining value chain**

Traditionally the role of geoscience within the mining value chain has been to sustain the resource base. This has been achieved through the identification and delineation of new resources to establish an operation or replace the tonnes and grade exploited by existing mining activities. However, geoscience has the capability to deliver more. Geoscience is one of the few disciplines that underpins and informs decisions across the entire value chain from grass roots exploration, through mining operations, to market and finally into closure.

The resource sector faces several challenges in a changing world. These challenges include:

1. deeper, more complex and often lower quality orebodies
2. changing demands for commodity types
3. increased expectation on volumes delivered and speed to market and
4. increasing environmental, societal and legislative pressures.

To meet these challenges the resource sector must embrace transformative characterisation of insitu and disturbed rock mass at all stages of a deposit's life cycle. Increasing resource volumes and speed to market requires earlier and greater understanding of total rock mass characterisation. The application of uncertainty quantification and probabilistic approaches to deliver risk-based geoscience models will support more informed design and planning decisions across the value chain. At the same time, we must leverage sensing and sensor technology to accelerate the speed and increased volumes of data acquisition and interpretation required. And finally, a sustainable future requires investment in the uplift of waste material characterisation that is generated during mining and processing.

The value of transformative total rock mass characterisation extends beyond resource estimates and mine plans. It will unlock design and plan options, improve our understanding of risk and enable rapid, confident and superior decision making across the entire value chain from exploration to closure.

#### **Biography**

Kerry Turnock has 29 years of resource sector experience spanning geoscientific, operational, technical marketing and technology disciplines. This multidisciplinary experience underpins

Kerry's ability to understand the value of geoscientific inputs for organisational decisions across the value chain, ranging from grass roots exploration through mining and processing and to the end customer. She has a proven track record of successfully delivering break-through projects with functioning solutions that have resulted in realised benefits from resource identification through to improved mining practices. Kerry holds a Masters in geology from Monash University and is the Global Practice Lead Resource Knowledge with BHP's Resource Centre of Excellence.



### **Simon Jowitt**

Thursday August 31<sup>st</sup>, 12:00 – 13:00 / Room HPH G1

#### **Ores for a Changing World; mining in the 21<sup>st</sup> century, the energy transition, and the future of the minerals industry**

Globally we extract more metals and minerals than at any other point in human history, reflecting the mineral and metal basis of modern society. However, the minerals industry also faces more challenges that at any other time in the past, not just in terms of discovery and extraction of metals and minerals but also as a result of increasing environmental, social and governmental challenges that delay project development and can result in the cancellation of exploration licences and the removal of permission to operate. These challenges coincide with increased awareness of the importance of climate change mitigation, leading to government policy and investment and consumer demand for a move towards carbon-neutral economies and a rapid need for low- and zero-CO<sub>2</sub> energy generation, storage and transport. The metal and mineral requirements for this energy transition are often ignored by policymakers but will require significant increases in production of key minerals and metals beyond current record levels of production, even if we can also increase recycling rates. The clash of often anti-minerals industry sentiment with the increased demand for metals and minerals that will drive the minerals industry for decades to come indicates we rapidly need to reconsider what is ore. We must move away from ore as being a purely economic concept to one that embraces all of the challenges and opportunities outlined above and more. This requires a rethink of the concepts of mineral and metal extraction to move towards more sustainable and comprehensive use of finite mineral resources, to develop approaches to generate wealth from minerals industry waste, and to improve our understanding of mineral deposits to both aid discovery and to allow enhanced main, co- and by-product recovery.

#### **Biography**

Simon Jowitt is currently the tenured Director of the Ralph J. Roberts Center for Research in Economic Geology and the Arthur Brant Chair of Exploration Geology at the University of Nevada Reno, Nevada, USA. He has a BSc (Hons) degree in Geology from the University of Edinburgh, an MSc in Mining Geology from the Camborne School of Mines, and a PhD from the University of Leicester, all in the UK. Simon also spent eight years at Monash University in Melbourne,

Australia, initially as a three-year postdoctoral research fellow working with Anglo American before moving to spend seven years as an Assistant and then tenured Associate Professor of Economic Geology at the University of Nevada, Las Vegas. His research focuses on the use of geochemistry to unravel geological processes in a variety of settings with direct application to understanding not only mineralizing systems but also igneous petrology, mineral exploration, global tectonics and the links between magmatism and metallogeny. He has also undertaken extensive research on mineral economics, global metal resources and the security of supply of the critical elements, and the “economic” side of economic geology, as demonstrated by a number of recent publications on global base, precious, and critical metal and mineral resources and the impact of the energy transition and COVID-19 on the global minerals industry. Simon also studies the environmental impact of mining and the potential uses of mining and other wastes for metal production and CO<sub>2</sub> sequestration. He has published more than 110 scientific papers and peer-reviewed book chapters since 2010, is currently the Vice-President for Student Affairs for the Society of Economic Geologists (SEG) and was awarded the SEG’s Waldemar Lindgren Award in 2014.



#### Round table discussion hosted by Anne JB Thompson

Friday September 1<sup>st</sup>, 12:00 – 13:00 / Room HPH G1

#### Community relationships - Is there a role for geologists?

Research, exploration, and mining activities inevitably impact local communities. This panel discussion will seek to explore the social challenges faced by mining companies and the approaches they are taking to build trust and establish positive community engagement relationships. While interactions between resource companies and

communities is often a source of tension, it can also be a mutually beneficial collaboration. From the first boots on the ground, a relationship with the local community exists. The exploration geoscientist can be a vital part of creating value, beyond the identification and delineation of ore bodies. How can we prepare geologists to embrace this role in community relationships? What are the keys to success? Addressing the social challenges posed by mining in any jurisdiction requires a range of skills and teamwork. Ultimately, it may not be possible to establish the agreement needed to mine in every jurisdiction. We can however, do a better job when geoscientists are part of the team.

#### Biography

Anne Thompson has thirty-five years working in and consulting to the mineral exploration industry, including field work and applied mineralogy, providing innovative approaches to mapping alteration minerals. She was an early adopter of field spectroscopy and co-edited the Atlas of Alteration, a resource for exploration geologists. Anne’s company, PetraScience,

is now a partnership with John Thompson and focuses on technology, sustainability and innovation in the mining industry. Anne is the producer and host of the SEG Discovery to Recovery Podcast and is the author of Innovation in Mineral Exploration published by the Prospectors and Developers Association of Canada. Anne was named to the WIMUK Global 100 Inspirational Women in Mining 2020.

**The four panellists below will bring a wide range of perspective into the discussion covering research, exploration and mining across continents and cultures.**

#### Halleluya Ekandjo

Halleluya Ekandjo is PhD Researcher with iCrag at University College Dublin. Her research focuses on understanding the genesis of the Rosh Pinah Zn-Pb-Ag deposit, Namibia. Halleluya graduated with a BSc degree in Geology from the University of Namibia in 2014 and obtained an MSc in Economic Geology from the University of the Witwatersrand in 2017. She has spent over 5 years exploring for base metals and stakeholders engagement in Namibia and Zambia. Halleluya participates actively in diverse scientific outreach activities such as geoscience communication in local communities.

#### Jon Keisu-Lundh

Jon Keisu-Lundh holds an MSc in Geology from Uppsala University and has 10+ years of experience from exploration and mining in Sweden and Scandinavia, ranging all the way from late stage greenfield up until advanced brownfield projects and active mining operations. Part of the responsibility of being the manager for Geodata with Boliden is leading the team responsible for permitting questions related to all exploration activities. With the green transition comes an increased interest in both mineral extraction and processing but also in exploration, especially in northern Europe, while access to land is diminishing due to restrictions and competition.

#### Sophie Decrée

Sophie Decrée is senior geologist at the Geological Survey of Belgium (GSB), Royal Belgian Institute of Natural Sciences. She started her career with the study of a mining district in Tunisia. She had then the opportunity to study the world-class supergene cobalt deposits and uranium deposits of the Copperbelt. Further investigations in Central Africa brought her to Burundi and the study of alkaline

#### Paola Vera

Paola Vera is Group Human Rights Manager at Glencore, engineer, specialist in Human Rights and Social Performance, with 15 years of experience in mining, mainly in Latin America, specifically in Peru, in the areas of Social Performance, Social Investment and Sustainable Development, and Human Rights.



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## We thank all convenors of SGA 2023

### Session 1a. Porphyry-type and skarn deposits

Andreas Audétat, Bayerisches Geoinstitut, Germany  
Bertrand Rottier, Université Laval, Canada

### Session 1b. Geothermal systems and epithermal ore deposits

Isabelle Chambefort, GNS Science, New Zealand  
Thomas Driesner, ETH Zurich, Switzerland

### Session 1c. Hydrothermal mineralization associated with highly fractionated magmas (e.g., Li, Be, Sn, W, Nb, Ta)

Matthieu Harlaux, BRGM, France  
Hélène Legros, University of Alberta, Canada  
Mathias Burisch, Colorado School of Mines, USA  
Celestine Mercer, USGS, USA

### Session 1d. IOCG and magnetite-apatite deposits

Adam Simon, University of Michigan, USA  
Tobias Schlegel, CSIRO Mineral Resources, Australia  
Irene del Real, Universidad Austral de Chile, Chile

### Session 2. VMS and seafloor mineralization

Clifford Patten, Karlsruhe Institute of Technology, Germany  
Ana Patrícia Jesus, Universidade de Lisboa, Portugal  
Rémi Coltat, Instituto Andaluz De Ciencias De La Tierra, Spain  
Melissa Anderson, University of Toronto, Canada

### Session 3. Gold: a journey from sources to precipitation sites and processes

Georges Beaudoin, Université Laval, Canada  
Steffen Hagemann, CET - University of Western Australia, Australia  
Crystal LaFlamme, Université Laval, Canada

### Session 4a. Metallogensis in sedimentary basins

Philippe Muchez, KU Leuven, Belgium  
Garth Graham, USGS, USA  
Sam Spinks, Teck Resources, Australia

### Session 4b. Supergene ore forming processes

Nicola Mondillo, Università degli Studi di Napoli Federico II, Italy  
Cristina Villanova-de-Benavent, Universitat De Barcelona, Spain

### Session 5. Critical minerals and geo-inspired technologies for a carbon-neutral future

Alexander Gysi, New Mexico Institute of Mining and Technology, USA  
Katharina Pfaff, Colorado School of Mines, USA  
Daniel Harlov, Deutsches GeoForschungsZentrum GFZ, Germany

### Session 6a. Mineral deposits related to mafic-ultramafic intrusions

Eduardo Mansur, Geological Survey of Norway, Norway  
Giada Iacono-Marziano, CNRS-ISTO, France  
William Smith, Carleton University, Canada

### Session 6b. Ore genesis associated with alkaline-carbonatite systems

Sophie Decrée, Royal Belgian Institute of Natural Sciences, Belgium  
Francesco Stoppa, Università Gabriele d'Annunzio, Italy  
Benjamin Walter, Karlsruhe Institute of Technology, Germany

### Session 7a. Advances in analytical techniques applied for ore deposits research and mineral exploration

Marco Fiorentini, CET - University of Western Australia, Australia  
Amanda Stoltze, Ivanhoe Mines Exploration, DRC

### Session 7b. New sensing instruments and processing methods in mineral exploration

Doug Schouten, Ideon Technologies, Inc., Canada  
Glenn Chubak, Dias Geophysical, Canada  
Thibaut Astic, KoBold Metals, Canada

### Session 7c. Machine learning, data mining and new target generation in mineral exploration

Daniel Gregory, University of Toronto, Canada  
Chetan Nathwani, ETH Zurich, Switzerland  
Francisca Maepa, BHP, Canada



## Tuesday August 29

### Room HPH G1

09:00	<b>Welcome speech</b> by SGA 2023 co-chairs & SGA President
09:15	Critical raw materials, the potential bottleneck of the energy transition. Invited talk by C. Poinssot (President, EuroGeoSurveys)
09:40	<b>Plenary 1</b> (Sofia Kalantzakos, Room HPH G1)

### Room HPH G1

**Session 1a.**  
Porphyry-type and skarn deposits

### Room HPH G2

**Session 3.**  
Gold: a journey from sources to precipitation sites and processes

14:00	<b>Chetan Nathwani (keynote)</b> Super-wet arc magmas linked to porphyry copper deposit formation?	14:00	<b>Iain Pitcairn (keynote)</b> Mineralogical controls on the generation of gold-rich metamorphic fluids
14:30	<b>Giulia Consuma</b> Volatiles in zircon-hosted apatite from the Escondida porphyry copper district, northern Chile	14:30	<b>Jochen Kolb</b> Complex hydrothermal evolution during retrograde terrane exhumation, Nalunaq gold deposit, South Greenland
14:45	<b>Clifford Patten</b> Sulfur and chalcophile metal transfer via sulfide-volatile compound drops during magma mixing: evidence from the Christiana-Santorini-Kolumbo volcanic field	14:45	<b>Carolina Mafra (student)</b> Metallogenic Fingerprinting of Gold Endowment in Magmatic Hydrothermal Deposits
15:00	<b>Yamila Cajal</b> The role of magmatic sulphide saturation in the formation of the supergiant porphyry copper deposits from Central Chile	15:00	<b>Diogo Ribeiro (student)</b> Metal and ligand mobility during prograde metamorphism of metasedimentary belts in the Superior Province: Implications for gold endowment
15:15	<b>Iván Mateo Espinel Pachón (student)</b> Redox state, sulphur and chalcophile element budgets during magma differentiation in thick continental arcs: case study at the Parímacota volcano	15:15	<b>Michael Schirra</b> Alkalic epithermal Au deposits: Insights into magma evolution and ore fertility using melt inclusions from Lihir Island, Papua New Guinea
15:30	<b>Coffee break</b>		
16:00	<b>David Lentz (keynote)</b> Genesis of Mineralized Skarns: reanalysis of decarbonation reactions, decarbonatization, and carbonate melting during infiltrative contact metasomatism	16:00	<b>Nico Thebaud (keynote)</b> Early crustal architecture revealed by multi-disciplinary data integration: implications for gold exploration targeting
16:30	<b>Matteo Luca Deidda</b> Mineralogical and compositional evidence of a district-scale Sn-W skarn system in SW Sardinia: a review	16:30	<b>Laurine Travers (student)</b> Spatial distribution and structural control on gold mineralisation in the Barberton Greenstone Belt (South Africa, Eswatini)
16:45	<b>Maria Paula Castellanos Melendez (student)</b> State-of-the-art garnet petrochronology in the Yerington district: What does it tell us about Cu skarn formation?	16:45	<b>Georges Beaudoin</b> Mapping Auriferous Fluid Flow along the Cadillac Larder Lake Fault Zone (Abitibi Belt, Canada)
17:00	<b>Exhibition floor HPH D floor Poster session 1</b>		

### Room HPH G1

10:40	<b>Coffee break</b>
11:10	<b>Award Ceremony</b>
12:00	<b>Plenary 2</b> (Simon Michaux, Room HPH G1)
13:00	<b>Lunch</b>

### Room HPH G3

**Session 5.**  
Critical minerals and geo-inspired technologies for a carbon-neutral future

14:00	<b>Adam Simon (keynote)</b> Critical Metal Resources Required for the Green Energy Transition	14:00	<b>Ville J. Virtanen (keynote)</b> Magmatic Black Shale Assimilation and the Formation of Sulphide Deposits – Perspectives from Experiments and Thermodynamic Simulations
14:30	<b>Jeffrey L. Mauk</b> Can the mining industry meet global demand for critical minerals?	14:30	<b>Anne Brandt Virnes (student)</b> Crustal S sources for komatiite hosted Ni deposits and implications for sulfide transport and deposition
14:45	<b>Samvel Hovakimyan</b> Critical Minerals Potential of Armenia: An Overview for Future Exploration	14:45	<b>Tercio Nunes (student)</b> Mineralogical constraints and evidence for crustal interaction in the Ni-rich systems of the Curaçá Valley mineral district, Bahia, Brazil
15:00	<b>Tony Christie</b> Copper in Onshore New Zealand: Mineral Deposit Types, Occurrences and Potential for this Critical Metal	15:00	<b>Daryl Blanks</b> Reassessing the source controls of Ni sulfide mineral systems
15:15	<b>Krzysztof Zieliński</b> The Northern Copper Belt – a chance for a new giant copper district in Poland	15:15	<b>Shelby Clark (student)</b> Role of carbon in the formation of Ni-Cu-PGE mineralization in the Valmaggia ultramafic pipe: Insights from laser-ablation-time-of-flight ICP-MS
15:30	<b>Coffee break</b>		
16:00	<b>Silvia Gioiello (student)</b> The Circular Economy Challenge: Re-use of processing granite wastes for REEs-recovery: preliminary results	16:00	<b>David Holwell</b> Towards a genetic model for the unusual Cu-Au-Te(-PGE) sulfide and Ni sulfide deposits of the Curaçá Valley, Brazil
16:15	<b>Olivia Mejías (student)</b> Exploration of indium in sulfidic mine waste and acid mine drainage environments	16:15	<b>Daniel Ferreira (student)</b> Magmatic sulphide mineralization and prospectivity in the Tantalite Valley Complex, Namibia
16:30	<b>Ali Jaffri</b> Controls on Grade in Lithium Clay Deposits: Lessons Learned from the San Juan Caldera Complex in Colorado, USA	16:30	<b>Olof Martinsson</b> Sulphidic Ni-Cu deposits in Sweden – general characteristics, genetic aspects, and economic potential
16:45		16:45	<b>Helen McFarlane</b> Post-volcanic modification of komatiite associated nickel sulfide mineralization: A case study of the Cassini deposit, Yilgarn Craton
17:00	<b>Exhibition floor HPH D floor Poster session 1</b>		



# Wednesday August 30 morning

	Room HPH G1	Room HPH G2
	<b>Session 1a.</b> Porphyry-type and skarn deposits	<b>Session 3.</b> Gold: a journey from sources to precipitation sites and processes
09:00	<b>Robert Loucks</b> Early zircon saturation and low Zr content of PCD-forming magmatic differentiation series: a guide for exploration targeting	<b>Daniel Wiemer</b> Superimposed orogeny as key to gold hotspot formation at the north Peruvian Gondwana margin
09:15	<b>Taraneh Roodpeyma (student)</b> New experimental data on potassic vs. albitic alteration	<b>Michael Herzog (student)</b> Precipitation of gold by wallrock sulfidation in the Val-d'Or Vein Field, Abitibi Subprovince (Québec, Canada)
09:30	<b>Madeleine Ince (student)</b> Switch in magma source linked to an evolving geodynamic environment in the Farallon Negro Volcanic Complex, NW Argentina	<b>Garth Graham</b> Reconnaissance mineral and cathodoluminescence studies of gold occurrences in the Pogo-Black Mountain area, eastern interior Alaska, USA
09:45	<b>Michael Cloutier (student)</b> Magmatic evolution of the Archean Upper Beaver Intrusive Complex and its implications for Au-Cu mineralization	<b>Denis Fougerouse</b> The role of crystal defects for the remobilisation of gold in pyrite
10:00	<b>Hugo Carrasco (student)</b> Tracking deep crustal evolution in porphyry copper systems: preliminary results from the Tres Cerrillos Cu-Mo prospect, Western Cordillera of Ecuador	<b>Phillip Gopon</b> Revelio Aurum! uncovering invisible gold in N. America, China, and Europe
10:15	<b>Robert Loucks</b> Oxidation and hydration states of porphyry-copper ore-forming magmas recorded by trace elements in zircon	<b>David Banks</b> Distribution of Elements in Gold Grains: Implications for Mineralization
10:30	Coffee break	
11:00	Room HPH G1 SGA General Assembly	
12:00	Plenary 3 (Kerry Turnock, Room HPH G1)	
13:00	Lunch	

	Room HPH G3	Room HCI J3
	<b>Session 5.</b> Critical minerals and geo-inspired technologies for a carbon-neutral future	<b>Session 6a.</b> Mineral deposits related to mafic-ultramafic intrusions
09:00	<b>Agnes Reyes (keynote)</b> Distribution of critical elements in rocks and fluids, Taupo Volcanic Zone, New Zealand	<b>Kreshimir Malich</b> Insights into genesis of Pt-Fe minerals, laurite and kashinite from clinopyroxenite-dunite massifs: evidence from compositional and Cu-S isotope data
09:15		<b>Anastasia Nailana</b> Mineralogical distribution of platinum-group elements (PGE) in the UG2 and Merensky Reefs at the Kalkfontein farm, Bushveld Igneous Complex
09:30	<b>Marie Guilcher</b> The world-class Schlemma-Alberoda U-(Ag-Co-Ni) deposit (Germany): mineralogy and fluid characteristics	<b>Maria Cherdantseva (student)</b> On the origin of volatile-rich minerals associated with magmatic sulfides
09:45	<b>Giulia Domenighini</b> Towards a better understanding of a Co-rich hydrothermal system: Punta Corna (Western Alps, Italy)	<b>Mohamed Ez-zghoudy</b> Mineralogical study of Co-Ni-As of the F53 vein deposit of the Ait Ahmane area (Bou Azzer-El Graara inlier, Morocco)
10:00	<b>Viktor Bertrandsson Erlandsson</b> Critical cobalt and where to find it: distribution of cobalt in the Dolostone Ore Formation deposit, Namibia	<b>Marieme Jabbour</b> Cobalt-nickel-copper arsenide, sulfarsenide and sulfide of Bou Azzer (Anti-Atlas – Morocco): Lithological and structural control
10:15	<b>Patrick Krolop</b> Potential for sulfide-hosted by-products from the iron oxide-apatite deposits at Kiruna? A mineralogical perspective	<b>Matías García</b> A new look to the high-PGE chromitites from the Cabo Ortegal Complex (NW Spain)
10:30	Coffee break	
11:00	Room HPH G1 SGA General Assembly	
12:00	Plenary 3 (Kerry Turnock, Room HPH G1)	
13:00	Lunch	

## Wednesday August 30

## afternoon

## Room HPH G1

**Session 1a.**  
Porphyry-type and skarn deposits

## Room HPH G2

**Session 3.**  
Gold: a journey from sources to precipitation sites and processes

14:00	<b>Alexandre Cugerone</b> White mica alteration in the Gaby porphyry copper district, Northern Chile	<b>Angel Verbel (student)</b> Tracing gold origin: A neural network approach to trace element geochemistry
14:15	<b>Federico Cernuschi</b> Hydrothermal alteration chemistry and mineralogy of the Maricunga-style Vendaval Central Cu-Au porphyry	<b>Lauri Virnes</b> Early Structural architecture controlling komatiite-hosted nickel sulphide and orogenic gold mineralisation at Beta-Hunt Au-Ni mine, Kambalda, WA
14:30	<b>Mario Guzman (student)</b> Evidence for a High-Level Porphyritic Intrusion Below the Sunnyside Epithermal Vein Deposit, Colorado	<b>Ravi Schreefel (student)</b> Granitoid-hosted, orogenic gold mineralization: Genetic constraints on the world-class Archean Gruyere gold deposit, Yilgarn Craton, Western Australia
14:45	<b>Jerry Dunga (student)</b> Hydrothermal alteration zonation and Au-Cu footprint of the New York breccia pipe, Ok Tedi, Papua New Guinea	<b>Dhruv Pathania (student)</b> Revisiting the Kundarkocha gold mine: A rare Paleoproterozoic greenstone-hosted gold deposit, eastern India
15:00	<b>Jan J. Falkenberg (student)</b> Fluid evolution and Re enrichment in the Maronia Cu-Mo±Au porphyry, NE Greece. Insights from mineral microanalysis and fluid inclusions constraints	<b>Enzio Garayp (student)</b> The conglomerate-hosted Jacobina gold deposits, a modified paleoplacer of the Witwatersrand-type in Brazil
15:15	<b>Alica Höss (student)</b> Evolution of the Skouries porphyry Cu-Au system by trace element variations	<b>Bjorn Von Der Heyden</b> Mineral-specific deportment of gold and other elements in mine tailings from the Witwatersrand goldfields
15:30	Coffee break	
16:00	<b>Luis Krampert (student)</b> Texture, composition, alteration styles in the Permo-Triassic granodiorite and the Eocene tonalite porphyry at the Gaby porphyry copper deposit, Chile	<b>Gülcan Bozkaya</b> Gold in the Sardis Placer Deposit: Composition and Source of King Croesus's Gold
16:15	<b>Thomas Bissig</b> Copper Creek, Arizona: Laramide Early Halo Style Porphyry, Breccia and Massive Sulphide Mineralization	<b>Philippe Mongeau (student)</b> Multiple sulfur isotope analyses identify an Archean sulfur source for the auriferous fluids at the Meliadine gold district, Nunavut, Canada
16:30	<b>Simon Kocher</b> Unravelling Hypogene to Supergene Processes in a Concealed Porphyry: Insights from the Santa Cruz Copper Deposit, Arizona, USA	<b>Maria Mesquita</b> Overprinted mineralizing gold events at the Paleoproterozoic Alta Floresta Mineral Province, Brazil
16:45	<b>Adrianna Virmond (student)</b> The apparent decoupling of magmatic and hydrothermal activities in the Chuquicamata District	<b>Inge Cools (student)</b> Gold mineralizing fluids at the Imonga mineralization in the eastern part of the Democratic Republic of Congo
17:00	Exhibition floor HPH D floor Poster session 2	

## Room HPH G3

**Session 5.**  
Critical minerals and geo-inspired technologies for a carbon-neutral future

## Room HCI J3

**Session 6a.**  
Mineral deposits related to mafic-ultramafic intrusions

14:00	<b>Robert Dunst (student)</b> A lithological context for stratabound REE mineralisation at the birthplace of REEs – Bastnäs, Riddarhyttan, Sweden	<b>Anne-Aurélien Sappin</b> Magnetite composition as petrogenetic and fertility indicator for Fe-Ti-V-(P) mineralization in Archean mafic-ultramafic intrusions within the Superior Province, Canada
14:15	<b>Kateryna Poliakovska (student)</b> Comparison of the Wilson and Ivan monazite-bearing high-grade mineralization at Alces Lake, SK (Canada): Mineralogy, composition, and U-Pb chemical ages	<b>Héctor Ricardo Campos Rodríguez (student)</b> Mafic magmatism in the Central Iberian Zone: Towards a better understanding of Sb mineralization?
14:30	<b>Paul Slezak</b> Hyperspectral cathodoluminescence of REE-bearing apatitic minerals from Pajarita Mountain, USA	<b>Anthony Pochon</b> Ilmenite-hosted fluid inclusions: Snapshot of magmatic fluid chemistry in mafic rocks
14:45	<b>Alexander P. Gysi</b> The MINES thermodynamic database for simulating the hydrothermal mobilization of REE in critical mineral deposits	
17:00	Exhibition floor HPH D floor Poster session 2	

We are discovering  
the resources  
of the future.  
Will you join our quest?

Drive change for  
generations to come

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# Thursday August 31 morning

	Room HPH G1	Room HPH G2
	<b>Session 1d.</b> IOCG and magnetite-apatite deposits	<b>Session 3.</b> Gold: a journey from sources to precipitation sites and processes
09:00	<b>Kathy Ehrig (keynote)</b> Similarities, yet differences: Olympic Dam, Oak Dam West, Wirrda Well, Island Dam and Acropolis IOCG deposits, Olympic Cu-Au Province, South Australia	<b>Andressa De Araujo Silva</b> Timing of the Orogenic Jouthineva Au-Cu-Co and Huhta Au mineralization: Constraints from titanite U-Pb dating
09:15		<b>Bin Lin (student)</b> In situ geochronology of hydrothermal events in the Upper Beaver Au-Cu deposit, Abitibi greenstone belt, Canada
09:30	<b>Max Hohl (student)</b> Variations in Trace Element Chemistry of Pyrite from the Starra IOCG deposit, Queensland, Australia as proxy for Cu-Au Mineralization	<b>Julien Perret</b> Record of the oldest vein-type gold mineralization throughout the Neoproterozoic Nubian shield: the Galat Sufar South gold deposit, NE Sudan
09:45	<b>Marek Locmelis</b> The Formation of the Pilot Knob Iron Ore Cluster in Southeast Missouri, USA: Implication for the Exploration for IOA Deposits	<b>Wen-Sheng Gao (student)</b> Precise constraints on the lifespan of gold mineralization in the giant Yixingzhai gold deposit, North China Craton
10:00	<b>Eduardo Mansur</b> Assessing silicate-liquid immiscibility using trace element in titanomagnetite and ilmenite in the Raftsund intrusion, Lofoten-Vesteraalen AMCG suite, Northern Norway	<b>Douglas C. Kreiner</b> Constraints on the Genesis of Au Veins in Interior Alaska: Evidence from Geochronology and Vein Textures
10:15		<b>Rita Rodrigues (student)</b> Petrographic and chemical characterization of superimposed Au-bearing events at the Augmitto-Bouzan deposit (Abitibi)
10:30	Coffee break	
11:00	<b>Ryan Mathur</b> Insights into IOA and IOCG deposit genesis from comparative isotopic analysis of Fe and Cu isotope compositions in magnetite and ores	<b>Sumail (student)</b> Insights into the formation of high-grade gold mineralisation at the 10 M oz. Jundee gold camp of Western Australia
11:15	<b>Tobias Schlegel</b> Controls on iron oxide-Cu-Au mineralisation: dogma versus data	<b>Gabriel Soares (student)</b> The Geological Setting and Hydrothermal Alteration at the Tucano Gold Deposit, Guiana Shield, Brazil
11:30		<b>Aung Myo Thu (student)</b> Mineralogy and geochemistry of the A2 and New A2 gold deposits in the Nwe Yon-Kwinthoneze gold district, central Myanmar
12:00	Room HPH G1 Plenary 4 (Simon Jowitt)	
13:00	Lunch	

	Room HPH G3	Room HCI J3
	<b>Session 2.</b> VMS and seafloor mineralization	<b>Session 7a.</b> Advances in analytical techniques applied to ore deposits research and mineral exploration
09:00	<b>Sven Petersen (keynote)</b> Geological settings, distribution, and resource potential of seafloor hydrothermal systems	
09:15		
09:30	<b>Jonathan Umbsaar (student)</b> The Hydrothermal History of the VOLPA Seafloor Massive Sulphide Deposit, SW Pacific	<b>Guillaume Barré (keynote)</b> Delineating the sulfur isotope signature of a VMS district by LA-ICP-QQQ-MS
09:45	<b>Louis-Maxime Gautreau (student)</b> Constraints on magma evolution at the epithermally mineralized Conical Seamount, Papua New Guinea	
10:00	<b>Simon Hector (student)</b> Magmatic metal contribution to volcanic arc seafloor massive sulfides: case study of the Kolumbo volcano	<b>Daniel Gregory</b> How trace elements are incorporated into pyrite, a view from mm- to nano-scale
10:15		<b>Yann Mpaka Waku (student)</b> Pyrite analysis enhanced by dimensionality reduction: investigating texture, trace elements, and sulphur isotope signatures in the Kibali gold district, DRC
10:30	Coffee break	
11:00	<b>Benoit Lamy Chapuis</b> Modelling of zinc mobilization by magmatic-hydrothermal circulation in the sub-seafloor	<b>Patrick Carr</b> Cassiterite: the zircon of mineral systems
11:15	<b>Andrew Martin</b> Fluid overprinting in an oceanic detachment fault: micro-analysis of pyrite from 13°30' N on the Mid-Atlantic Ridge	<b>Tonny B. Thomsen</b> U-Pb dating and trace-element characterisation of potential cassiterite reference materials applicable to Sn-W mineralisation systems
11:30	<b>Bing Xiao</b> Iron, boron and sulfur isotope constraints on ore-forming process of the subseafloor replacement-style volcanogenic massive sulfide systems	<b>Léa Géring (student)</b> Identification and characterization of indicator minerals using $\mu$ -XRF
12:00	Room HPH G1 Plenary 4 (Simon Jowitt)	
13:00	Lunch	

# Thursday August 31 afternoon

	Room HPH G1	Room HPH G2
	<b>Session 1c.</b> Hydrothermal mineralization associated with highly fractionated magmas	<b>Session 7b.</b> New sensing instruments and processing methods in mineral exploration
14:00	<b>Bernd Lehmann (keynote)</b> Metallogeny of tin: from rocks to ore	
14:30	<b>Karel Breiter</b> The role of micas in the origin of granite-related Sn-W-Nb-Ta mineralization	
14:45	<b>Matthieu Harlaux</b> Comparison of the Beauvoir and Cínovec rare metal granite/greisen systems: Role of muscovitization on Li-Sn-W-Ta hydrothermal remobilization	<b>Markus Schiffler</b> Quantum sensors for airborne mineral exploration
15:00	<b>Océane Rocher (student)</b> High-temperature meteoric water incursion in the Beauvoir rare-metal granite: insights from apatite	<b>Christopher Parker (keynote)</b> The use of total-field data for mineral exploration
15:15	<b>Johan Ramirez (student)</b> Major and trace element composition of the Lithium-rich Tuff from the Macusani Volcanic Field, Puno, Peru	
15:30	Coffee break	
16:00	<b>Mariana Segovia-More (student)</b> High-resolution mineralogy of 'lithium-rich tuff' from the Macusani Volcanic Field, Puno, Peru	<b>Douglas Schouten</b> Muon Tomography for Mineral Exploration and Resource Delineation
16:15	<b>Iñigo Borrajo (student)</b> Magmatic-hydrothermal stratabound W-(Sn) mineralization in the Iberian Variscan Massif: The Barxa deposit	<b>René Booyesen</b> Multi-scale and multi-source hyperspectral imaging for mapping lithium-bearing minerals
16:30	<b>Candela Pita (student)</b> Ore-forming events at the W-rich Santa Comba deposit, NW Spain	<b>Ziandjédé Hervé Siagné</b> New lithostructural map of the Doropo region, northeast Côte d'Ivoire: Insight from structural and aeromagnetic data
16:45	<b>Eimear Deady</b> Multi-phase tungsten mineralisation at the world class Hemerdon deposit	<b>Eric Anderson</b> Resistivity imaging over porphyry copper systems in the Red Mountain district, southwest Colorado, USA
17:00	Exhibition floor HPH D floor Poster session 3	

	Room HPH G3	Room HCI J3
	<b>Session 2.</b> VMS and seafloor mineralization	<b>Session 7a.</b> Advances in analytical techniques applied to ore deposits research and mineral exploration
14:00	<b>Michelle DeWolfe (keynote)</b> VMS mineralization, recent developments, and the big remaining questions	<b>Andrea Giuliani (keynote)</b> Compositional variations of olivine in kimberlites: A new tool for diamond exploration
14:30	<b>Nils Jansson</b> Inter- and intra-caldera, stratiform Zn-Pb-Ag and iron formation at Nyberg, Bergslagen, Sweden	<b>Katharina Pfaff</b> Critical Minerals: Germanium and Cobalt in the Bornite Deposit, Southwestern Brooks Range, Alaska
14:45	<b>Leanne Schmitt (student)</b> Reconstructing the formation of volcanic-associated Lahn-Dill-type iron ores from fluid venting to seafloor deposition	<b>Slawomir Mederski (student)</b> LA-ICP-MS trace element composition of stibnite from the Kizhnica-Hajvalia-Badovc ore field, Kosovo
15:00	<b>Mark Arundell</b> The value of resampling – application of a generalised geochemical exploration model at Golden Grove VMS, Australia	<b>Nigel W. Brand</b> Application of Next Generation Technology in Undercover Exploration
15:15	<b>Mizuki Ogasawara (student)</b> Formation age of Kosaka Uchinotai-West Kuroko Deposit, NE Japan, determined by Re-Os isotope analysis	<b>José Godinho</b> Standardized and Automated 3D Mineralogy of Ores
15:30	Coffee break	
	<b>Session 7c.</b> Machine learning, data mining and new target generation in mineral exploration	
16:00	<b>Dina Klimentyeva (keynote)</b> The role of data science in modern mineral exploration and mining: adding machine learning tools to the geoscientist's toolbox	<b>Lucas Pereira</b> Exploring semi-supervised generation of mineral list for automated mineralogy systems
16:15		<b>Friederike Körting</b> Hyperspectral mineral mapping on exploration core from the Au-rich from LaRonde Penna VMS deposit, Quebec, Canada in the shortwave infrared
16:30	<b>Huayong Chen</b> Building up a new mineral exploration indicator (MEI) system based on big data and AI technology	<b>Wilhelm Nikonow</b> Continuous element mapping of drill cores from the Bushveld Complex, SA using LIBS and $\mu$ EDXRF
16:45	<b>Alexander Farrar (student)</b> Plate convergence, orogenic uplift, and tectonic preconditioning for giant porphyry copper formation in the central Andes	
17:00	Exhibition floor HPH D floor Poster session 3	



# Friday September 1 morning

	Room HPH G1	Room HPH G2
	<b>Session 1c.</b> Hydrothermal mineralization associated with highly fractionated magmas	<b>Session 4a.</b> Metallogenesis in sedimentary basins
09:00		<b>Marta Sosnicka (keynote)</b> Metallogenic models of sediment-hosted hydrothermal Zn-Pb deposits related to different tectonic settings
09:30		<b>Candice Filoche (student)</b> Contrasted sources of metals between small and giant sediment-hosted Pb-Zn deposits in the San Vicente district, Peru
09:45		<b>Lorenzo Tavazzani</b> Trace elements variation in gangue carbonates reveal redox and temperature shifts in Mississippi Valley-type, Zn-Pb deposits
10:00		<b>Julia Woitischek</b> An experimental study of metal extraction from red-bed sandstones as potential source rocks for sediment-hosted copper deposits
10:15		<b>Halleluya Ekandjo (student)</b> Mineralogical variation and paragenesis of the mineralisation and alteration at the Neoproterozoic Rosh Pinah Zn-Pb-Ag deposit, Namibia
10:30	Coffee break	
11:00	<b>Yang Li</b> Tin Deposition from Cooling Magmatic Fluids Revealed by SIMS Cassiterite Oxygen Isotope Analysis	<b>Christopher Reed (keynote)</b> The enigmatic nature of normal faults in sediment hosted Zn-Pb deposits
11:15	<b>Lisard Torró</b> Tourmaline composition records fluid-rock interaction: implications for cassiterite precipitation in the Triassic Chacaltaya district, Bolivia	
11:30	<b>Hélène Legros</b> Fluids involved in W-Be skarns from the Canadian Cordillera: example from the Cantung and Lened deposits, NWT, Canada	<b>Meissam Bahlali</b> Numerical investigation of fluid flow and Cu transport in the Katangan Basin, Central African Copperbelt
12:00	Plenary 5 (Round Table)	
13:00	Lunch	

	Room HPH G3	Room HCI J3
	<b>Session 7c.</b> Machine learning, data mining and new target generation in mineral exploration	<b>Session 1b.</b> Geothermal systems and epithermal ore deposits (1.5)
09:00		<b>Brian Tattitch (keynote)</b> Metal Endowment of Magmatic Brines from Active Geothermal Reservoirs
09:30	<b>Christophe Bonnetti</b> A GIS-based mineral prospectivity analysis of the Neoproterozoic Arabian Shield	<b>Lauren Zeek (student)</b> Ore Mineral Textures of the Midas Low-Sulfidation Epithermal Deposit: Implications for Ore-Forming Processes
09:45	<b>Mohammad Parsa (keynote)</b> Navigating the complexities of decision-making for Critical Mineral Exploration Campaigns: Insights from AI-based Geological Prospectivity and Risk Models	<b>Philipp Weis</b> Numerical constraints on the hydrothermal fluid evolution forming the Pirquitas Sn-Ag-Pb-Zn deposit in NW Argentina
10:00		<b>Margarita Melfou (student)</b> In-situ trace element analyses of pyrite from the Pefka epithermal Cu-Au-Te-In-Se deposit, Rhodope, Northern Greece
10:15	<b>Lara Capitanio</b> Large-scale structural controls on hot spring mineral deposits of geothermal systems (Mt. Amiata, Italy) highlighted by machine learning algorithms?	<b>Şafak Utku Sönmez (student)</b> A Comparative Study of VMS and Epithermal Deposit Settings in the Eastern Pontides, NE Turkey: Insights from Geochronology and Litho-geochemistry
10:30	Coffee break	
11:00	<b>Max Frenzel</b> The importance of hierarchical data structures for the interpretation of mineral trace-element data	<b>Patrick Ledru</b> Coupling structural evolution and fluid flow in metallogenic and geothermal systems
11:15	<b>Carlos Carrasco-Godoy (student)</b> Zircon geochemistry: insights into porphyry copper deposits fertility from machine learning applications	<b>Juan David Palma Montealegre (student)</b> Using PHREEQC for mineral prospecting in waters related to geothermal systems in Wyoming: possible precipitation of hydroxyapatite enriched with REEs
11:30	<b>Valentin Dos Santos</b> Assessing tourmaline as an indicator mineral using multivariate statistics	
12:00	Plenary 5 (Round Table)	
13:00	Lunch	

## Friday September 1 afternoon

	Room HPH G1	Room HPH G2
	<b>Session 1c.</b> Hydrothermal mineralization associated with highly fractionated magmas	<b>Session 4a.</b> Metallogenesis in sedimentary basins
14:00	<b>Sava Markovic (student)</b> U-Pb Zircon Geochronology of the Sn(-Cu) Deposit San Rafael (Peru): Sources of Magmas and Magma-tic Evolution	<b>Jessica Torres (student)</b> Multiple mineralization and fluid flow phases in the Central African Copperbelt. Implications for the age dating of the ore-forming processes
14:15	<b>José Alejandro Franco (student)</b> U-Pb columbite-tantalite ages from NW-Amazonian Craton, Colombia	<b>Qiuping Liu (student)</b> LA-ICP-MS trace element geochemistry of chalcopyrite from Tenke Fungurume, Central African Copperbelt
14:30	<b>Minenhle Maphumulo</b> U-Pb geochronology and Sm-Nd isotope compositions of simple and complex NYF pegmatites from the Orange River pegmatite belt, South Africa	<b>Helen Twigg (student)</b> District scale basin development interpretations utilizing stratigraphic correlation -Structural target generation for Kipushi style Zn-Cu-Pb deposits in Southern Congolese Copperbelt
14:45	<b>Douglas Kirwin</b> Magmatic Silica Caps associated with Intrusion-related ore deposits	<b>Krzysztof Foltyn (student)</b> Germanium-bearing minerals in the Cu-Ag Kupferschiefer deposit in Poland
15:00	<b>Laura van der Does (student)</b> Fluid exsolution in the outer zones of the Emmons Pegmatite (Maine, USA)	<b>Katharina Pfaff</b> The Iron Creek Deposit in the Idaho Cobalt Belt: On a Quest for Cobalt
15:15	<b>Jolan Acke (student)</b> Spodumene textural variations in a deformed LCT-type pegmatite. A case study from the Musha-Ntungwa area, Rwanda	<b>Gaétan Milesi</b> Combined Lithological and Structural Controls on Unconformity Related Uranium Deposits (Eastern Athabasca Basin, Canada)
15:30	<b>Gharlied Abrahams</b> Structural setting emplacement controls and evolution of selected pegmatites across a portion of the Kakamas Domain, Namaqua Metamorphic Province	<b>Danielle McGill (student)</b> Geology and geochemistry of the shale-hosted vanadium mineralization at the Van property, Northwest Territories
15:45	Coffee break	
16:00	Transition to SGA 2025	
16:15	Oral and poster student awards	

	Room HPH G3	Room HCI J3
	<b>Session 4b.</b> Supergene ore forming processes	<b>Session 6b.</b> Ore genesis associated with alkaline-carbonatite systems (1.5)
14:00	<b>Cristina Villanova-de-Benavent (keynote)</b> A hydrous Mg silicate Ni deposit within the oxide type Moa Bay laterite mining district, eastern Cuba	<b>Philip Verplanck (keynote)</b> The Mount Weld rare earth element deposit, Western Australia: a carbonatite-derived laterite
14:15		
14:30	<b>Diego Domínguez-Carretero (student)</b> Mn-Ni-Co oxy-hydroxides from Ni-Co laterites of Moa-Bay mining district, eastern Cuba	<b>Ana Carolina Miranda</b> Iron-Ti oxide and apatite mineralisation associated with alkaline monzonitic rocks: An example from the Kodal deposit, Permian Oslo Rift, Norway
14:45	<b>Nicolás Bustos (student)</b> Regolith-hosted rare earth genesis under humid climates in the Coastal Cordillera of the Central Andes	<b>Hélène Legros</b> Dating multi-stage REE mineralization in Canada: the example of Thor Lake and Saint Honoré deposits
15:00	<b>Michael Gazley</b> Clay-hosted REE mineralisation under the microscope	<b>Maria Grazia Perna</b> Fengchengite from Sierra La Vasca Complex, Mexico
15:15	<b>Julien Poot (student)</b> Weathering processes associated to the formation of supergene Cu-As-Pb-Zn minerals at the Cap Garonne mine (France, Provence)	<b>Julia McIntosh</b> Stable isotope constraints on the source of ore fluids for the Hicks Dome REE+Y-HFSE-fluorspar deposit
15:30	<b>Yanick Blaise Ketchaya</b> LA-ICP-MS trace element analysis of gold grains from the Gamba, northern Cameroon: Implications for the chemical fingerprint of mineralizing fluid	
15:45	Coffee break	
16:00	Transition to SGA 2025	
16:15	Oral and poster student awards	

## Poster sessions

Poster wall	Abstract number	Name	Paper Title
<b>Session 1a.</b> Porphyry-type and skarn deposits			
A-1	89 (student)	Néstor Cano	Metallogenic model of the Eocene Zn-Pb(-Ag) Santa María and Antares bodies of the Velardeña skarn district (Durango, Mexico)
A-2	278 (student)	Diego Delgado Yáñez	Trace element and sulphur isotope composition of selected minerals from the W-Mo porphyry deposit Ochtiná-Rochovce
A-3	132 (student)	Polina Leibham	Characteristics of the ore-bearing Srednensky pluton granitoids and altered rocks in Babushkin Bay, Magadan region, Russia
A-4	45	Beata Naglik	Pyrite as a porphyry Cu indicator mineral: new insights from the Myszków Mo-Cu-W deposit (Poland) and future perspectives
A-5	123	Nazaire Nzaou Mabika	LA-ICP-MS trace element analysis of pyrite from the Bakoudou gold deposit, South Gabon: Implications for ore genesis
A-6	133 (student)	Stefan Petrović	Fluid inclusion study in quartz of the Rudnik Pb-Zn-Cu-Ag skarn deposit, Serbia
A-7	333 (student)	Maria Fernanda Reyes Gonzalez	El Chichón volcano, Mexico: A window into an active Porphyry-Cu-Mo-Au system
A-8	296 (student)	Peerapong Sritangsirikul	U-Pb ages and trace elements of zircons from Loei and Truong Son fold belts, Laos: Implication for porphyry deposit fertility
A-9	251 (student)	Wen-jie Xia	Sulfide resorption contributes to porphyry deposit formation in collisional settings
B-1	225 (student)	Jingbo Zhang	Can post-subduction porphyry Cu magmas form by partial melting of typical lower crustal amphibole-rich cumulates?
<b>Session 1b.</b> Geothermal systems and epithermal ore deposits			
B-2	338 (student)	Pablo Carbajal	La Blanca's Epithermal deposit in its relation with Las Minas Skarn Metallogeny study, Veracruz, Mexico
B-3	351	Lizbeth Carrillo-Marrodan	Geology and mineralisation styles of the polymetallic deposit of Silver Hart at the Rancheria Silver district, Yukon Territories, Canada

B-4	7	George Dinca	Melt inclusions types within related processes in the Dănești - Piatra Roșie realm (Maramureș County, Romania)
B-5	286	David Dolejs	Thermodynamic models of hydrothermal equilibria: critical assessment of mineral solubility and aqueous speciation
B-6	330	Peter Koděra	Complex genetic model of the shear-zone hosted epithermal Au-Ag-Pb-Zn-Cu deposit Banská Hodruša at the Rozália mine, Slovakia
B-7	239	Maximilian Korges	Numerical simulations of pulsed epithermal ore-forming events in geothermal systems with incrementally growing magma reservoirs
B-8	224	Pearlyn Manalo	Trace element variations and sulphur isotopic ratios of enargite and alunite from the quartz-pyrite-gold orebodies, Mankayan District, Philippines
B-9	287	Gaétan Milesi	«Fault Permeability and Active Hydrothermal Systems: A Key to Infer the Formation of Unconformity-Related Uranium Deposits from Athabasca Basin (Canada)»
C-1	81 (student)	Giorgi Mindiashvili	Study of Hydrothermally Altered Zones within the Gujarat-Khachkovi Ore Field Using Terra ASTER Multispectral Satellite Data. Georgia.
C-2	264 (student)	Mehdi Ousbih	Mineralogy, Pb isotopes in galena, and Nd isotopes in associated dykes from Ag-Hg linter deposit, Anti-Atlas, Morocco: implications for metal sources
C-3	205	Morena Pagola	Vanadium and Indium enrichment in La Luz epithermal system, Patagonia, Argentina
C-4	324	Nino Popkhadze	3D lithological and structural model and prospectivity of the Late Cretaceous Sakdrisi Gold-Copper Epithermal deposit, Bolnisi district, Lesser Caucasus, Georgia
C-5	285	Elitsa Stefanova	Pb-containing aluminium phosphate-sulphate mineralization from the advanced argillic alteration in the Chelopech epithermal high-sulphidation Cu-Au deposit
C-6	137 (student)	Khaled Bock	Hydrodynamics of crustal detachments and syn-kinematic granites: numerical exploration and implication on uranium mobilities
<b>Session 1c.</b> Hydrothermal mineralization associated with highly fractionated magmas (e.g., Li, Be, Sn, W, Nb, Ta)			
C-7	203	Jhoshua Unikuni Aparicio Abadía	Magmatic-Hydrothermal Mineral Formation Systems: A Geological Study.
C-8	141 (student)	Iñigo Borrajo	Diachronous tin mineralization in the Iberian Pyrite Belt
D-1	328 (student)	Malena Cazorla Martínez	Fluid evolution in the San Rafael Sn-Cu lode deposit, Peru: Constraints from fluid inclusion analyses and chlorite geochemistry

D-2	244	Sylvina Georgieva	Pegmatite REE-mineral association from the Kroushev Dol base metal deposit (south Bulgaria): mineral replacements and timing of formation
D-3	170	Sylvina Georgieva	Rare-earth element mineralization in altered pegmatites from the Djurkovo Pb-Zn deposit, Central Rhodopes
D-4	112	Nynke Keulen	Dating and trace-element characterisation of Sn-W skarn-, greisen- and metamorphic vein-type occurrences from East-Greenland
D-5	326 (student)	Ivan Losada	In situ LA-ICP-MS U-Pb age of cassiterite from Auxiliadora Sn-W vein type deposit, northwestern Spain
D-6	321	Celestine Mercer	«Critical minerals in Climax-type magmatic-hydrothermal systems»
D-7	255	Georgi Milenkov	Comparative study of pegmatites from the Central Rhodopean Pb-Zn deposits (Bulgaria)
D-8	241	Fernando Noronha	Scheelite in the Panasqueira tungsten deposit. An example of host rock control in tungstate composition.
E-1	313	Seo Jieun	Different characteristics of productive and barren Jecheon adakitic intrusions in the Hwanggangri mineralized district, Republic of Korea
E-2	32 (student)	Thiessen Alexander	Structural features tied to mineral deposits deformed by shear zones
E-3	148	Lisard Torró	Lithium-bearing micas in the 'Lithium-rich Tuff' from the Macusani Volcanic Field, Puno, Peru
E-4	50	Vojtech Wertich	Large-scale HFSE and REE mobility linked to the formation of vein-type U-deposits in the Moldanubian Zone of the Bohemian Massif
E-5	317	Wladyslaw Zygo	Genthelvite from the world-class beryllium-polymetallic deposit - Perga, Ukraine
E-6	301	Wladyslaw Zygo	Preliminary results of U-Pb dating and trace element analysis of cassiterites from the Western Sudetes, SW Poland
F-1	159	Jingwen Mao	The world-class Jiangnan tungsten belt: Geological characteristics, metallogeny, and ore deposit model
F-2	268	Charlie Moon	Regional rock geochemistry of granites and elvans in SW England: delineation of composite intrusions and Sn-Li potential

<b>Session 1d.</b> IOCG and magnetite-apatite deposits			
F-3	91 (student)	Travis Batch	Assessing REE-phosphate mineral chemistry for ISCG exploration
F-4	22	Olivier Blein	Alteration Footprints of Metasomatic Iron and Alkali-Calcic Systems in the Northern Norrbotten, Sweden
F-5	149	Rajarshi Chakravarti	A new hematite-dominated iron oxide copper-gold system: Insights from the Lawa gold deposit, North Singhbhum Mobile Belt, eastern India
F-6	99 (student)	Max Hohl	Hydrothermal origin of bladed titanomagnetite during early alteration stages at the Starra IOCG deposits, Queensland, Australia
G-1	343 (student)	Marcello Imaña	A geological update on the Viscaria Cu-Fe deposit, Kiruna district, Northern Sweden
G-2	174 (student)	Julia Mapula Maponya	Genesis of iron ore deposit at Ga-Nchabeleng area.
G-3	171 (student)	Iris Van Der Werf	Characterization of the Kiskamavaara IOCG-(Co) deposit, northern Norrbotten, Sweden.
G-4	353	Daniel Harlov	Apatite and REE in iron oxide-apatite (IOA) deposits
G-5	164	Jens Henriksson	Fe-O isotope systematics and magnetite chemistry of the Malmerget iron-oxide apatite deposit, Sweden
<b>Session 2.</b> VMS and seafloor mineralization			
G-6	261	Árpád Ádámcsik	Ore genetic study of the Ostra polymetallic mineralization (Eastern Carpathians, Romania)
H-1	129 (student)	Bastien Audran	Serpentinization of the Ronda Massif (Spain): structural control and fluid origin, a framework for metal mobility
H-2	76 (student)	Yiyang Cai	Formation of large mound-shaped sulfide deposit on axial volcanic ridge – A case from the Wocan-1 hydrothermal field, Carlsberg Ridge
H-3	181	Rémi Cottat	Origin of Fe-Ca metasomatism at oceanic core complexes: implications for the formation of seafloor massive sulphide deposits (MARK area, 23°N)
H-4	234	Carmen Conde	The San Miguel deposit, Iberian Pyrite Belt: reconstructing a sub-seafloor replacive VMS



H-5	228	Carmen Conde	A new vision of the geodynamic evolution of the Iberian Pyrite Belt: VHMS in an intra-arc basin
H-6	172	Annika Geringer	SEDEX deposits in the Graz Paleozoic, Eastern Alps, Austria
I-1	242	Simon Goldmann	Textures of Cu-Fe sulphides in hydrothermal seafloor massive sulphide deposits: indications of a new metastable mineral phase Cu <sub>2</sub> Fe <sub>3</sub> S <sub>5</sub>
I-2	265	Atanas Hikov	Distribution of Characteristic Elements in Pore Waters, Sediments and Nodules from Eastern Part of the Clarion-Clipperton Fractures Zone, NE Pacific
J-1	290	Ana Jesus	Lead isotope systematics of VMS deposits from Oman
J-2	78 (student)	Filip Simán	Linking Lithofacies and Chemostratigraphy, Rävliiden North VHMS deposit, Skellefte district, Sweden
K-1	344 (student)	David Summer	The Tectonic Evolution of the North New Hebrides Backarc Troughs: A Remote-Predictive Mapping Approach
<b>Session 3.</b> Gold: a journey from sources to precipitation sites and processes			
K-2	348	Márcia Boscato Gomes	Using Chlorite and White Mica Mineral Chemistry as Footprints at Alta Floresta Mineral Province – Brazil.
K-3	337	Joy Carter	Unravelling the Geological History of the Fenelon Gold Deposit, Québec, Canada
K-4	60	Sébastien Castonguay	Multiple sulphur isotope signatures of the Fenelon gold deposit, Abitibi Greenstone Belt, Canada: Constraints on fluid origin and ore-forming processes
K-5	11 (student)	Zhengpeng Ding	Role of carbonaceous material in gold precipitation for orogenic gold deposits: A case study of the Bangbu gold deposit, China
L-1	93	Mizuki Ishida	Utility of volcanic rock geochemistry in discriminating fertile areas for epithermal gold mineralization: A case study in Japan
L-2	114	Stanisław Mikulski	Geophysical VLF prospecting for orogenic gold in the historic mining area in the Sudetes (SW Poland)
L-3	74	Nelson Román	The trace element composition of pyrite through metamorphism at the Yukon-Tanana Terrane, Yukon
L-4	346 (student)	Renata Augusta Sampaio Paes	Structural control of gold deposits at Eastern Alta Floresta Mineral Province Brazil, preliminary results
L-5	193	Thomas Stapley	World-class gold deposits and emerging exploration opportunities in the Loulo district, West Africa

M-1	295	Alexander Antonov	Known and potential types of gold mineralization at the Muruntau district
M-2	136 (student)	Thabo Kgarabjang	Quantification of hydrothermal alteration associated with gold-antimony mineralization along the Antimony Line, Murchison greenstone belt, South Africa.
M-3	127	Rutger La Cock	Fluid evolution and carbon-gold systematics at the Fairview Mine, Barberton Greenstone Belt, South Africa
M-4	33 (student)	Xinhao Li	The Control of Sulfur Fugacity on Metal Melts and Gold Mineralization: A Case Study of the Jinjingzui Au Deposit
M-5	216	Bjorn Von Der Heyden	Mineral-specific deportment of gold and other elements in mine tailings from the Witwatersrand goldfields
N-1	80 (student)	Shane Webb	An integrated approach towards unravelling the gold mineralisation processes around Ardtalnaig, Scotland.
<b>Session 4a.</b> Metallogenesis in sedimentary basins			
N-2	300 (student)	Fatiha Askkour	"A lower Cambrian Moroccan Copperbelt? (Tizert copper deposit, Morocco): preliminary results of Cu-Fe-sulfide Re-Os geochronology and stable sulfur isotope data"
N-3	214	Tomasz Bieńko	Metal zonation of the sediment-hosted stratiform Nowa Sól Cu-Ag deposit, SW Poland
N-4	210 (student)	Bongsu Chang	Mineralogy and geochemistry of the Myeonsan Fe-Ti placer deposit, Korea: preliminary results
N-5	273	Augustin Dekoninck	Depositional environments and metamorphic evolution of the Paleoproterozoic Mn-rich graphitic metasediments
O-1	363	Stefan Höhn	Mineralogy and geochemistry of the Koeris Formation – Evidence of post-depositional base metal mobility within the Aggeneys-Gamsberg ore district, South Africa
O-2	23	Philippe Muchez	Solid bitumen in the Central African Copperbelt: implications for understanding the ore-forming processes
P-1	247	Abraham Rozendaal	Detrital zircon mineral chemistry and U-Pb geochronology of coastal marine sands, South Africa: provenance and exploration implications.
P-2	367	Nicolas Saintilan	Co-evolution of pyrite 66Zn and sphalerite-pyrite-galena modal proportions in the ca. 1,828 Ma Mississippi Valley-type Zn-Pb Black Angel deposit, Greenland: insights into the chemical potential of sedimentary carbonates for Zn mineralization
Q-1	322	Veronica Trevisan	Mineralogical mapping of potential source, aquifer and trap rocks from the Central African Copperbelt

Q-2	288 (student)	Ivana Carcamo Valencia	Cobalt-rich manganese nodules in Pliocene marine deposits of the onshore forearc Pisco Basin, Peru
Q-3	236 (student)	Zoubair EL OUAD	Litho-structural control of Pb-Ag veins in Jbel Addana district: Case of the Igharassene deposit (Western Anti-Atlas, Morocco)
<b>Session 4b.</b> Supergene ore forming processes			
Q-4	298 (student)	Konrad Kluza	Zinc incorporation in carbonate minerals from the Selac area, Kosovo
Q-5	53	Bohdan Křibek	Germanium mineralization in subbituminous coal from the Sokolov Basin, Czech Republic: The origin and volatility of Ge
<b>Session 5.</b> Critical minerals and geo-inspired technologies for a carbon-neutral future			
Q-6	145	Rosie Blannin	Geostatistical and geometallurgical investigation of Co in the Rocklands tailings deposit, Queensland, Australia
R-1	311 (student)	Juan Felipe Correa Briceño	New paradigms on phosphate mining in the Colombian industry: Crystallochemistry and geochemistry of phosphorites from the Lidita Superior Formation, Colombia
R-2	306	Alexandre Cugerone	Fluid inclusions host germanium in acicular sphalerite from the carbonate-hosted Zhulingou Pb-Zn deposit, South China
R-3	167	David Currie	"Critical raw material potential of the North Pennine Orefield, England"
R-4	309 (student)	Juan Felipe Galan Palacios	"Genesis, Sedimentology, and Geochemical Features of Phosphorite Deposit in Colombia and his content on Rare Earth Elements "
R-5	277 (student)	Jasmin Mareen Hiller	A green future from a contentious past: Gold and critical metals in a historic arsenic mining district Strassegg (Styria)
R-6	297	Nico Kropp	Geochemical trends of lithium-bearing minerals in LCT-pegmatites in Central Namibia
S-1	163	Loren Nicholls	Tracking cobalt deportment from primary ore to copper tailings and determining reprocessing potential
S-2	57 (student)	Fernando Prado Araujo	Forensic geometallurgy of Ni-Co laterites: Sustainable processing of Europe's low-grade ores and tailings into battery-grade metals
S-3	217 (student)	Rembuluwani Ravele	A mineralogical characterization of an antimony tailings dam: Implications for antimony recovery

S-4	212 (student)	Ignazio Scano	Ni-Co-As-Bi minerals in the Silius vein system, (SE Sardinia, Italy): The polymetallic evolution of a world-class fluorspar deposit
S-5	144	Anna Vymazalova	The typology of Czech graphite raw materials
S-6	15	Zhengdong Han	Formation of secondary tungsten minerals in wolframite tailings under microbial influence
T-1	41	Julie Hunt	Environmentally sustainable production of critical metals: a Tasmanian approach
T-2	256 (student)	Niederl Sandra	Invisible metals for a green future: Au associated critical elements in historic mining districts Murtal (Styria)
<b>Session 6a.</b> Mineral deposits related to mafic-ultramafic intrusions			
T-3	6	Joo Sung Ahn	Geochemical thresholds for vanadium throughout Korea and at potential development sites
T-4	35	George Dinca	Ni-Cu-Co-Bi mineralization in Valea Muntelui ultramafic complex (Cindrel Mountains, Romania)
T-5	71 (student)	Caroline Hlongwani	"Characterization of the UG2 Reef split-facies types, Eastern Bushveld Complex, South Africa: A mineralogical perspective"
T-6	153	Giada Iacono Marziano	The importance of volatiles in the formation of magmatic sulphide ore deposits: experimental constraints
U-1	47	Navruzбек Jurabekov	PROSPECTS ON PLATINOIDS OF THE MAFIC-ULTRAMAFIC BELT OF THE SULTANUVAIS MOUNTAINS (UZBEKISTAN)
U-2	165	Eduardo Mansur	The Ni-Cu-Co mineralisation of the Espedalen Complex, southern Norway: constraints for the distribution of magmatic sulphides within an anorthosite intrusion
U-3	95	Jan Pasava	Chemistry of major sulfides from Ni-Cu (PGE) mineralization at the Ransko ore district (Bohemian Massif): A result from LA-ICPMS study
U-4	157	Anna Vymazalova	Solubility of selected elements in the synthetic analogue of kotulskite (PdTe)
<b>Session 6b.</b> Ore genesis associated with alkaline-carbonatite systems			
U-5	131 (student)	Pierre Buelens	Mineralogical and geochemical insights of Fe-Ti-P-REE mineralization in alkaline igneous complexes: example from the Kodal deposit, Oslo Rift, Norway

U-6	66 (student)	Zhe Chi	Magmatic and hydrothermal processes in a carbonate-related REE mineralization system: insights from the Maoniuping deposit, southwestern China
<b>Session 7a.</b> Advances in analytical techniques applied to ore deposits research and mineral exploration			
V-1	194 (student)	Francesca Del Rio	Zircon and whole-rock geochemical fertility tools applied to porphyry copper deposits: Case study, Chachimbiro Volcanic Complex and Cerro Tolondro, Ecuador.
V-2	281	Andrea Giuliani	In-situ Rb-Sr dating of mica: method refinement and application to mineral resources
V-3	352 (student)	Ekaterina Ivanova	Mineralization age of the Kar'ernoe ore occurrence, Polar Urals revealed by the U-Th/He dating of pyrite
V-4	68	Patrick Krolop	Characterisation of apatite-bearing magnetite ore in drillcores using $\mu$ -XRF
V-5	320 (student)	Lehman Miranda	Continuous X-Ray Fluorescence Core Scanning: Application Examples and Methodology Developments
V-6	230	Sheida Makvandi	XRD clustering and quantitative analysis as a fingerprinting technique to study ore deposits
W-1	266 (student)	Andrés Sebastian Martín-Ravelo	Integrated analysis of the Consorcio prospect in Cunas emerald mine (Colombia), tool to determine mineralization stages and related by-products
W-2	307	Naila Mezoued	Rapid and on-site elemental quantitative analyses using handheld LIBS: the Beauvoir granite case study
W-3	274 (student)	Phumudzo Gift Munyai	Phytoremediation, a less costly prospect for tailings rehabilitation
X-1	107	Nicolas Pinet	Exploring the preservation potential of mineral deposits in the northern Canadian Cordillera through low temperature thermochronology: preliminary insights
X-2	29	Seung-jun Youm	Nation-wide low-density geochemical mapping using composite sample, Korea
X-3	177 (student)	Giovanni Pedemonte	Exploring mineral chemistry variations in tourmaline and chlorite at the Triangle orogenic gold deposit (Val-d'Or, Québec): Implications for mineralisation vectors
Y-1	349	Dieter Rammlmair	A hyperspectral detailed view on a magnetite horizon in the Bushveld Complex, SA.

Y-2	94 (student)	Benjamin Ndobe Tarkang	Evaluation Of The Occurance Of Rare Earth Element In The Geological Formations Outcropping The Koumbizick Massive South Region Of Cameroon
<b>Session 7b.</b> New sensing instruments and processing methods in mineral exploration			
Y-3	198 (student)	Juan Mosquera	Remote sensing and radiometric data for the detection of hydrothermal alteration zones with mineral potential at Yarra Wurta cliff, Australia
<b>Session 7c.</b> Machine learning, data mining and new target generation in mineral exploration			
Z-1	120	Chelsea M. Amaral	National- to continental-scale governmental geophysical efforts for critical mineral mapping, USA
Z-2	19	Carlos Carrasco-Godoy	Imputation methods for REE and Y in zircon
Z-3	350	Kat Lilly	Predicting mineral abundances from geochemistry in a heavy mineral sand deposit



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## Social Programme

### Ice Breaker – Monday August 28

The Ice Breaker welcome reception will take place starting from 6 pm in the conference venue – HPH Building Exposition Ground Floor – on ETH Campus Höggerberg.

Registration desks will be open as early as 4 pm on that same day.

### Glencore-sponsored student-Industry event – Tuesday August 29

The Student-Industry event is a prime opportunity for students and early career scientists to meet and interact with industry delegates in a casual environment.

The SGA 2023 Student-Industry event will take place at Stadtkäserei. The event is free and fully catered.

Registration is mandatory upon registration on the SGA2023 website. Do not miss this great networking opportunity at the end of the first day of the conference in the great atmosphere of Stadtkäserei, downtown Zürich.

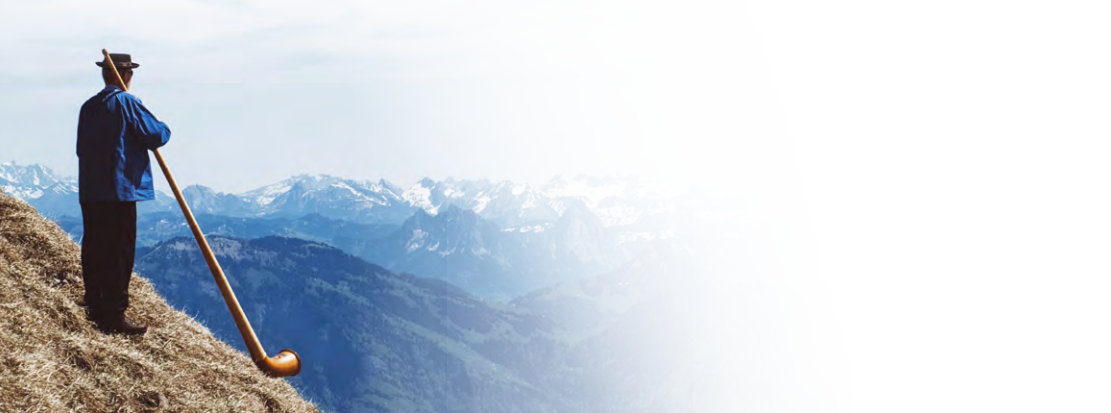
**Address:** Stadtkäserei & Restaurant, Zollstrasse 37, 8005 Zurich.

### Gala dinner – Thursday August 31

Our gala dinner is hosted by the Albisgüetli Inn, Uetlibergstrasse 341, 8045 Zurich.

We propose a 3-course dinner with a choice of wine or beer (water and coffee included).

Please join us for a great night in amongst colleagues and friends on the Western shore of Lake Zürich at the footstep of Ütliberg Hill. An Alpine horn performance will be a highlight of this gala dinner with a local band of Alphorn blowers!



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**17<sup>th</sup> Biennial SGA Meeting**  
ETH Zurich, Switzerland  
August 28 – September 1