SGA 2022 Technical Programme

As at 31 March 2022. Subject to change. All times in New Zealand Daylight Time.

Day 1, Monday 28 March				
08:00 – 09:30	Plenary session 1 - Opening and SGA Awards Ceremony Chair: Tony Christie			
10:00 – 11:30	Plenary session 2 - Keynote speakers - NZ theme: Julie Rowland, Dave Craw and Stuart Simmons Chair: Annette Pocock			
Session 1	1A **New Zealand mineral deposits and metallogenesis** Chair: Michael Gazley Co-Chair: Tony Christie	1B **Distal signatures and vectors toward mineralisation in carbonate rocks: porphyry, skarn, vein, and replacement deposits - 1 of 2** Chair: Zhaoshan Chang	1C **Spatial data analysis for mineral exploration - 1 of 3** Chair: Arianne Ford Co-Chair: John Carranza	1D **Diversity and inclusion** Chair: Annette Pocock Co-Chair: Nicole Januszczak
12:00 – 12:15	KEYNOTE **Shannon Richards** - The Influence of host rocks on epithermal veining in the Waihi area of New Zealand	KEYNOTE **Peter Megaw** - Manganese-based Vectoring in Distal Carbonate Replacement Deposits	**Marko Holma** - Imaging faults, shear zones and folds with cosmic-ray induced atmospheric muons: an introduction to muography for structural geologists and mining industry	**Keenan Jennings** - Gender equality and the challenges of setting performance metrics

12:15 – 12:30			**Tom Czertowicz** - Maximising the Extraction of Geological Information from Geophysical Datasets Using Machine Learning and 3D Mapping	**Melanie Finch** - Why we lose women from geoscience
12:30 – 12:45	**Thomas Gardner** - Exploration history of the Wharekirauponga low-sulphidation epithermal gold-silver deposit, Coromandel, New Zealand	**Michael Kirschbaum** - Distal signatures of the Bingham porphyry Cu-Au-Mo mineralization in carbonate wallrocks	**Alex Vella** - Coupling Disc-Based Association and Random Forest for Prospectivity Mapping	**Caroline Tiddy** – Dance parties in geosciences
12:45 – 13:00	**Isabelle Chambefort** - Magmas, metals and deep roots of geothermal systems in the Taupo Volcanic Zone, New Zealand	**Zhaoshan Chang** - Sulfur content in calcite measured using LA-ICP-MS/MS and its application in mineral exploration	**Malcolm Aranha** - Prospectivity analysis using unsupervised machine learning	**Marina Costelloe** - Diversity, Inclusion and a sustainable future
13:00 – 13:15		**Jacob Makis** - Evolution of the Ertsberg Pluton, Ertsberg-Grasberg Mining District, Papua, Indonesia	KEYNOTE **Gregor Partington** - Outcomes from Using Mineral Potential Modelling as a Tool to support Decision Making in Mineral Exploration and Resource Development	**Helen Degeling** - The criticality of diversity
13:15 – 13:30		**Evie Burton** - Hydrothermal signatures in Lower Carboniferous carbonates in the Irish orefield: Recent geological and geochemical advances in understanding ore genesis and providing exploration vectors		**Kate Finch** - Inclusive workplace design
13:30 - 14:30	Plenary Session 3 | Discussion Session - Inclusive Workplace Design Chair: Kate Finch Co-Chair: Annette Pocock			
15:00 – 16:00	Plenary Session 4 | Student Discussion Session Chair: Michael Gazley			
	2A	**2B**	**2C**	**2D**

22:00 – 23:30	**Peralkaline and carbonatite magmatism and related critical metal mineralisation** Co-Chair: Michael Anenburg Co-Chair: Lillian Kendall-Langley	**Placer deposits** Chair: Dave Craw	**Mineral vectors towards ore deposits: advances, applications and novel methods** Chair: Renee Birchall Co-Chair: Tobias Schlegel Co-Chair: Jessica Stromberg	**Secondary prospectivity of mine waste: from metals to construction materials** Chair: Anita Parbhakar-Fox Co-Chair: Gavin Mudd
22:00 – 22:15	**Valentin Mollé** - Crystallisation sequence of a REE-rich carbonate melt: an experimental approach	**Dave Craw** - Placer gold morphology, composition, and concentration during extensive recycling, southern New Zealand	**Ana Carolina Miranda** - Using scheelite composition and statistical analysis to distinguish ore deposits	KEYNOTE **Robert Seal** - Expanding the Perspective on Mine Waste Value with an Emphasis on Critical Minerals and Environmental Mitigation
22:15 – 22:30	**Walter Witt** - The Ngualla Rare Earth Element Deposit, Tanzania	**Maximilian Dröllner** - A zircon perspective on the upgrading of heavy mineral sand placer deposits	**James Austin** - Translating lithogeochemistry into petrophysics: Vectoring to IOCG mineralisation undercover.	
22:30 – 22:45	**Maria Cherdantseva** - Carbonatite melt as a travel agent for magmatic sulfide liquid: nature vs. experiments	**Robert Brathwaite** - Controls on the Formation of Large Titanomagnetite Placers on the West coast North Island, New Zealand	**Jonathan Cloutier** - Geology and Mineral Chemistry of Alteration Minerals at the Mt Eliott, Corbould and SWAN Deposits, NW Queensland, Australia	**Rosie Blannin** - Predictive modelling of mineralogical and textural properties of tailings using geochemical data
22:45 – 23:00	**Michael Anenburg** - REE mineralisation style in carbonatites determined by wallrock interaction	**Bocheng Ma** - Do platinum nuggets form during lateritization? The evidence from Fifield (Australia) is an emphatic no	**Matthew J. Cracknell** - LocatOre: A Tool for Modelling Proximitor Equations Using Multi-Element Mineral Chemistry Data	**Laura Jackson** - Determination of rare earth element content in mine waste, Phosphate Hill Mine, NW Queensland
23:00 – 23:15	**Malcolm Aranha** - Carbonatite-Alkaline complex related REE mineral system model		**Tobias Bamforth** - The Potassium Mobility Index (KMI): An XRF-Appropriate Discriminator for Sericitic and Chloritic Alteration	**Loren Nicholls** - Exploring the potential for critical metal resources in mine waste: Geometallurgical characterisation of cobalt-bearing minerals in tailings at the Capricorn Copper Mine, Northwest Queensland
23:15 – 23:30	**Virginia Mclemore** - Structural and chemical controls of REE mineral deposits in the Gallinas mountains (Gallinas district), Lincoln County, New Mexico, USA		SPEED TALKS **Caroline Tiddy** - Monazite as an exploration tool for iron oxide-copper-gold mineralization **Sandra Birtel** - Hydrothermal wall rock	**Gavin Mudd** - Joining the Geochemical Rocks: Mapping the Potential of Mine Tailings and Waste Rock in Australia

			alteration related to Late Variscan Pb-Zn-Ag-(Au) mineralisation and its implication for exploration in the Freiberg District, Germany **Irmeli Huovinen** - Updating brownfield areas with modern techniques: Use of portable X-ray diffraction and hyperspectral analysis for systematic alteration mineralogy mapping in VMS-type Aijala and Metsämonttu deposits in southwestern Finland	
23:30 – 23:45				**Alexandra Gomez Escobar** - Application of a geochemical-mineralogical approach to sulfidic tailings from Neves Corvo mine, as indicator for future mining and remediation
	3A	**3B**	**3C**	**3D**
00:00 – 01:30 *Tuesday 29 March*	**Metallogenic processes within mafic-ultramafic magmatic systems - 1 of 2** Chair: Margaux Le Vaillant	**Sediment hosted zinc-lead deposits** Co-Chair: Murray Hitzman Co-Chair: Jens Gutzmer	**Geochemical anomaly classification and modelling in mineral exploration** Chair: Behnam Sadeghi	**From sustainable mining to sustainable mining regions - 1 of 3** Co-Chair: Agnès Samper Co-Chair: Marie Forget Co-Chair: Magali Rossi
00:00 – 00:15	KEYNOTE **Giada Iacono-Marziano** - The critical role of magma degassing in sulfide melt mobility and metal enrichment	**Halleluya Ekandjo** - Spatial controls, mineralogical variation and paragenetic sequence of the mineralisation and alteration at the Rosh Pinah Zn-Pb deposit, Namibia	KEYNOTE **Dietmar Müller** - Deep Time Exploration	**Floriane Guillevic** - The environmental trajectory of a former mining territory evidenced from an integrated and multidisciplinary approach: the case of Peisey-Nancroix Pb-Ag mine
00:15 – 00:30		**Philippe Muchez** - Age dating of sediment-hosted ore deposits: new insights from U-Pb age dating of		**Andy Yahya Al Hakim** - Geochemical Dispersion of Metal and Rare-earth elements in Water and Soil in the

		carbonates from the Polish MVT deposits		Tailing Storage Facility in Central Kalimantan, Indonesia
00:30 – 00:45	**Daryl Blanks** - The origin of Cu-(Te-Au-Ni-PGE) sulfide deposits of the Curaçá Valley, Brazil: can tellurium settle the genetic debate?	**Michele Giorno** - Ore-forming conditions at the Gorno MVT district (Lombardy, Italy)	**Mark Lindsay** - Alternatives for geochemical modelling in time and space	**Julie Hunt** - Geological Characterisation to Identify Upgrade Potential and Enhance Mining Efficiency
00:45 – 01:00	**Steve Barnes** - Nickel depletion and enrichment in olivine in mafic-hosted Ni-Cu sulfide systems	**Nicholas Vafeas** - Characterising the Spatial Distribution of Regional and Hydrothermal Dolomitisation along the Rathdowney Trend, Ireland: Implications for Base Metal Exploration	**Jennifer McKinley** - Compositional MAF and geostatistical analysis of geochemical data to reveal geochemical anomalies for natural resource estimation	**Karin Olson Hoal** - Uncovering what is where: Metal deportment characterization of unconventional resources
01:00 – 01:15	**Anne-Aurélie Sappin** - Ekwan River subsuite of the Ring of Fire intrusive suite (Ontario, Canada): Mineralogical and geochemical constraints from the Big Mac and Croal Lake intrusions	**Philip Rieger** - 3D geological modelling of the Black Angel Zn-Pb mine area (Maarmorilik, West-Greenland) and its implications for mineral exploration	**Ehsan Farahbakhsh** - An improved generative adversarial network for mapping geochemical anomalies	
01:15 – 01:30	SPEED TALK **Erin Thompson** - Magmatic stratigraphy of the Platreef at Tweefontein, northern limb of the Bushveld Complex	**Aileen Doran** - Tracking the temperature and composition of hydrothermal fluids: the application of clumped O-C and strontium isotope analyses in the Irish Zn-Pb orefield	**Ana Carvalho** - Soil Sampling Campaign and Geochemical Analysis in the Ribeiro da Serra Sb-Au Mine (Gondomar, Portugal)	
01:30 – 01:45		**Max Frenzel** - Geology and Genesis of the Giant Gorevskoe Pb-Zn-Ag Deposit, Krasnoyarsk Territory, Russia		

Day 2, Tuesday 29 March				
		4B		
08:00 – 09:30		**VMS Systems: modern and ancient - 1 of 2**		

		Co-Chair: Melissa Anderson Co-Chair: Hannah Grant		
08:00 – 08:15		**Larryn W. Diamond** - Ore-bearing fluids for VMS deposits in basaltic oceanic crust: Insights from the Semail ophiolite, Oman		
08:15 – 08:30		**Alannah C. Brett** - Permeability available for hydrothermal leaching of VMS metals from basaltic lavas: Semail ophiolite, Oman		
08:30 – 08:45		**Thomas M. Belgrano** - Hydrothermal versus protolith compositional controls on the metal endowment of VMS deposits in proto-arc terranes		
08:45 – 09:00		**João X. Matos** - Metal distribution in the gossans of Lagoa Salgada, Caveira, Lousal, Montinho, Aljustrel, São Domingos and Chança VMS deposits, Iberian Pyrite Belt, Portugal		
09:00 – 09:15		**David Lefebure** - Expanding the Au-Ag Hybrid VMS Model to Include High Sulfidation deposits		
09:15 – 09:20		SPEED TALKS **Robin Wolf** - Source rocks for metals in basalt-hosted VMS deposits: Semail ophiolite, Oman **Brayden Dudley** - The origin of pyrite-sphalerite banding in metamorphosed volcanogenic massive sulfide deposits		
	5A	**5B**	**5C**	**5D**

10:00 – 11:30	**Critical metals and base-metal ore deposits: discovery to recovery - 1 of 2** Chair: Sean McClenaghan Co-Chair: Yanbo Cheng	**Porphyry and high sulfidation epithermal deposits - 1 of 3** Chair: David Cooke Co-Chair: Lejun Zhang	**Data-driven geoscience: machine learning and multivariate data analysis - 1 of 2** Chair: Michael Gazley Co-Chair: Shawn Hood	**Trace elements in minerals: where do we stand on the road between the holy grail and a can of worms? - 1 of 2** Chair: Nigel Cook
10:00 – 10:15	**Stefan Horn** - Europe's cobalt for electric vehicles: where do we find it and can it meet European demand?	KEYNOTE **Anthony C. Harris** - Alkalic Au-Cu deposits of the Cadia Valley (New South Wales) and Red Chris (British Columbia) – unconventional ancient porphyry deposits associated with post-subduction magmatism	KEYNOTE **Shawn Hood** - Machine Learning applied to mineral deposits	KEYNOTE **Nigel Cook** - Trace elements in minerals: where do we stand on the road between the Holy Grail and a can of worms?
10:15 – 10:30	**Stanislaw Mikulski** - Cobalt potential from the metallic deposits in Poland			
10:30 – 10:45	**Olivia Mejías** - Laser-induced breakdown spectroscopy (LIBS) analysis applied to indium-bearing minerals and textures at the Baal Gammon polymetallic deposit, Australia.	**Yanrong Liu, Robert MORITZ** - Sources of Sulfur in the Erdaohezi Pb-Zn-Ag Deposit, NE China: Constrains from In-situ Sulfur Isotope Analyses	**Malcolm Aranha** - Machine Learning for automated detection of geophysical features associated with carbonatites and alkaline ring complexes	**Dominique Genna** - Developing trace elements in pyrite as a petrogenetic discriminant tool for gold mineralization: example from the Abitibi greenstone belt, Canada
10:45 – 11:00	**Yanbo Cheng** - Fingerprinting the formation of Sn and W (±Mo) mineral systems and developing mineral exploration tools	**Ethan Tonks** - Pyrophyllite Chemistry in High-Sulfidation Epithermal Systems: A Case Study from the Pueblo Viejo Au-Ag(-Cu) Deposit, Dominican Republic	**Gabor Kereszturi** - New applications of hyperspectral sensing for geological exploration using multivariate statistical methods	**Dany Savard** - New Mapping Protocol Using a Rapid Response Cell (Fast-Funnel) for Laser Ablation Coupled to a Time-of-Flight Mass Spectrometer (LA-FF-ICP-TOF-MS) for the Fast, Simultaneous Quantification of Multiple Minerals
11:00 – 11:15	**Diego Benites** - Germanium-rich sphalerite in two Peruvian Mississippi Valley-type deposits	**Wei Hong** - Geochronology of porphyry-style hydrothermal mineralization and alteration at Anabama Hill, Delamerian Orogen, South Australia: New insights from zircon U-Pb, molybdenite Re-Os and white mica Rb-Sr ages	**Farzi Yusufali** - Modelling Deleterious Elements with "Less than One" Datasets via Deep Learning Methods and Non-Linear Correlation Studies	**Krzysztof Foltyn** - LA-ICP-MS trace element pilot study of sulfides from the Cu-Ag Lubin-Sieroszowice district, SW Poland
11:15 – 11:30		**Rose Clarke** - Post-subduction metallogenesis in upper crustal Au-Te deposits: insights from Tuvatu, Fiji		**Cristiana Ciobanu** - Nanomineralogy of melts trapped by growth of chromite inclusions in forsterite from Hawaiian basaltic magmas

11:30 – 11:45		SPEED TALKS **Jorge Morales-Leal** - What does the geochronology of supergene alteration and Cu-enrichment tell us about the landscape evolution in the Atacama Desert? **Ekaterina Rubtsova** - Experimental Modeling of Cu and Ag Coupled Transport by Chloride Hydrothermal Fluids at 350–450°C and 1000 Bar **Lahcen Ousaid -** Cu-Ag-Pb mineralization of Agdim - Ait El Fersi sector, Northeastern part of the Moroccan Anti Atlas belt: Geological, mineralogical and geochemical characteristics		SPEED TALKS **Valeria Ramírez-Juya** - Geochemical and mineralogical characterization of emeralds from La Arcadia mine, Colombia **Sabine Dietrich** - Lessons from the Self-Organisation Concept for Geological and Ore Forming Processes **Javier Garcia-Toloza** - Chromium and vanadium trazability from host rock to emerald: differences between the main zone's emerald producers in Colombia. Western and Eastern belts: gemological implications **Nikolay Trofimov** - The state of Cu, Ag, and In in sphalerite determined by X-ray absorption spectroscopy of synthetic crystals and theoretical modelling **Alexandra Mota** - Hypogenic mineralizations of W and Sn in Northern and Central Portugal and Castilla and León regions of Spain
	6A	**6B**	**6C**	**6D**
12:00 – 13:30	**Gold in metamorphic terranes — new research approaches, new models, and new target areas - 1 of 2** Chair: Rich Goldfarb Co-Chair: Iain Pitcairn	**Distal signatures and vectors toward mineralisation in carbonate rocks: porphyry, skarn, vein, and replacement deposits - 2 of 2** Chair: Zhaoshan Chang	**Spatial data analysis for mineral exploration - 2 of 3** Chair: Arianne Ford Co-Chair: John Carranza	**Complex orebodies - unlocking future resources through orebody knowledge and geometallurgy** Chair: Nathan Fox Co-Chair: Anita Parbhakar-Fox

12:00 – 12:15	KEYNOTE **Julian Vearncombe** - Function and Status of Structural Geology in Resource Management	**Zhaoshan Chang** - Geochemical zoning patterns in carbonate wallrocks of the Candelaria Cu-Au district, Chile	KEYNOTE **Nicole Januszczak** - Using Multidimensional Mineral Systems-based Predictive Models to Tackle the Growth Challenge Facing the Mining Industry	KEYNOTE **Regina Baumgartner** - Beyond conventional geometallurgy: a broader view to be prepared for a circular economy
12:15 – 12:30		**Michael J. Roach** - 3D Geological Model of the Dolphin Tungsten Skarn Deposit, King Island, Australia		
12:30 – 12:45	**Nicolas Thebaud** - The Paleoproterozoic gold deposits of West Africa: a review	**Lejun Zhang** - Using Visible-near, Shortwave, and Thermal Infrared Spectral Data and Mineral Chemistry to aid Tungsten Skarn Exploration: A Case Study from the Dolphin Deposit, King Island, Australia	**Arianne Ford** - Challenges with Regional-Scale Mineral Potential Mapping Using Big Data	**Karla Morales** - Geological controls for pre-concentration in an intrusive related gold deposit
12:45 – 13:00	**Anmol Barla** - Genesis of gold mineralization in the Pahardiha-Rungikocha gold deposit, North Singhbhum Mobile Belt, eastern India: A geochemical and mineral-chemical approach	**Ioannis Korosidis** - Distal Fe skarn deposits of Serifos Island: New mineralogical and geochemical constrains on the retrograde assemblage and associated ore mineralization	**Mohammad Parsa** - Handling the data imbalance and poor predictive ability of Machine- and Deep-learning-based Mineral Potential Mapping	**Javier Merrill-Cifuentes** - Quantitative image textural analysis for copper flotation recovery
13:00 – 13:15	**Gabriel Silva** - Stratigraphy, hydrothermal alteration and geochemical signature of Faina gold deposit, Pitangui Greenstone Belt, Brazil	**Aaron Hantsche** - Mineral growth and fluid processes responisble for the geochemical zonation in banded distal skarn bodies	**Sareh Sadigh** - Application of Spatial Point Pattern Analysis of Porphyry Copper Deposits in Kerman Belt, Southeastern Iran	**Carsten Laukamp** - Thermal infrared-active vibrational modes of spodumene and their relationship to Fe-content
13:15 – 13:30	**Laura Petrella** - Crustal-scale transport of nanoparticle forms ore deposits	**Ivan Mateo Espinel Pachon** - Mineralizing fluids in the Catalina Huanca carbonate-replacement Zn-Pb-Ag deposit, southern Peru	SPEED TALK **Joseph A. Bravo** - 3D Geological–Geophysical–Geochemical Modeling of the Russell Lake property (Saskatchewan, Canada): Targeting/Discovering Basement-Hosted Uranium Deposits	**Pia Lois-Morales** - Towards unlocking the value of detailed characterization data for comminution and geometallurgical modelling
13:30 – 13:45	**Helen McFarlane** - Revelations through micro-characterisation of komatiite-associated invisible Au	**Ali Parchegani** - Characterising the mineralogical and geochemical halo of the giant Mt Isa Pb-Zn-Ag-Cu deposit using integrated hyperspectral and X-		

		ray fluorescence (XRF) core scanning technology		
20:30 – 21:30	Plenary session 5 - Discussion session - Lifting the hood on the relationship between academia, industry, and surveys Co-Chairs: Thomas Belgrano and Halleluya Ekandjo			
22:00 – 23:30	Plenary session 6 - Keynote speakers - Exploration theme - Mark Simpson, David Cohen and Teresa McGrath Chair: Michael Gazley			
		7B	**7C**	**7D**
00:00 – 01:30 *Wednesday 30 March*		**Sediment hosted copper deposits** Chair: Philippe Muchez Co-Chair: Erin Marsh	**Development geosciences and mineral resources for society** Chair: Nicolas Thebaud Co-Chair: Mark Jessell	**From sustainable mining to sustainable mining regions - 2 of 3** Co-Chair: Agnès Samper Co-Chair: Marie Forget Co-Chair: Magali Rossi
00:00 – 00:15		**Jamie Kelly** - Constraining Cu-Co mineralization in the Zambian Copperbelt using accessory minerals: rutile, apatite and monazite	KEYNOTE **Mark Jessell** - The West African Exploration Initiative (WAXI): 15 years of research for development	**Michel Jébrak** - Ghost towns as markers of the resilience conditions along extractive frontiers
00:15 – 00:30		**Anna Bidgood** - Linking complex vein paragenesis with kyanite growth and copper sulphide mineralisation at low temperatures in the Congolese Copperbelt		**Magali Rossi** - A framework to analyze the evolution of the territorial values and vulnerabilities over the mine life cycle
00:30 – 00:45		**David Holwell** - Mafic rocks as a source of Cu, Co and Ni in the Central African Copperbelt	**Nicolas Thebaud** - The Agate Project	**Amelia Lee Zhi Yi** - Integrated socio-technological approaches for adaptive land-uses in mining economies
00:45 – 01:00		**Pascal Mambwe** - Metallogenesis of the Kyaundji Cu-Zn-(Pb) deposit (Tenke	**Manuel Nopeia** - Implications of geological knowledge for an effective formalization of artisanal and small-	**Daniel Florentin** - Closing mines, greening economic trajectories and building territorial capability: the triad

		Fungurume Mining, Democratic Republic of the Congo)	scale gold mining in Numuno district, Mozambique	of a sustainable post-mining territory. The systemic ecological transition of Loos-en-Gohelle in the French Mining District
01:00 – 01:15				SPEED TALK **Marie Forget** - Global Production Networks and the lithium industry: A Bolivian perspective

Day 3, Wednesday 30 March				
	8A	**8B**		
08:00 – 09:30	**Unconventional sources of critical metals** Chair: Dennis Krämer	**Hot spring deposits and epithermal environments** Chair: Diego Guido Co-Chair: Ayrton Hamilton		
08:00 – 08:15	**Maria Alejandra Rodriguez Mustafa** - Iron Oxide-Apatite (IOA) Deposits as Potential Vanadium Sources	KEYNOTE **Franco Pirajno** - Subaerial hot springs and near-surface hydrothermal mineral systems past and present, and possible extraterrestrial analogues		
08:15 – 08:30				
08:30 – 08:45	**Cristina Villanova-de-Benavent** - REE phosphates vs REE carbonates in the Bahoruco karst bauxites, Dominican Republic	**Robert Brathwaite** - Epithermal zeolite and gold-silver mineralisation associated with sinters, Central Taupo Volcanic Zone, New Zealand		
08:45 – 09:00	**Agnes Reyes** - Critical Elements in Fluids of the Taupo Volcanic Zone	**Ayrton Hamilton** - Delineating Geothermal Upflow from Surface Features: A Wai-O-Tapu Case Study		
09:00 – 09:15	**Olof Martinsson** - Economic potential of battery metals and minerals in Sweden	**Barbara Lyon** - Textures and Mineralogy of the Ohakuri Fossilised Hot Spring Sinter, Taupo Volcanic Zone, New Zealand		

09:15 – 09:30	**Atanas Hikov** - Genetic types and REE composition of polymetallic nodules from the eastern part of the Clarion–Clipperton Fractures zone, NE Pacific	**Diego Guido** - Jurassic shallow epithermal systems from southern Patagonia, Argentina		
	9A	**9B**	**9C**	
10:00 – 11:30	**Critical metals and base-metal ore deposits: discovery to recovery - 2 of 2** Chair: Sean McClenaghan Co-Chair: Yanbo Cheng	**Porphyry and high sulfidation epithermal deposits - 2 of 3** Chair: David Cooke Co-Chair: Lejun Zhang	**Data-driven geoscience: machine learning and multivariate data analysis - 2 of 2** Chair: Michael Gazley Co-Chair: Shawn Hood	
10:00 – 10:15	**Yuling Xie** - Bayan Obo rare earth element deposit: revisiting the ore-forming process	**Jocelyn Pelletier** - The Santo Tomás Deposit, Sinaloa, México: A Particularly Elongated Porphyry Copper Deposit.	**Lance Karlson** - Geological Modelling using MWD Data	
10:15 – 10:30	**Avish Kumar** - Indium Bearing Mineral Occurrences in Fractionated Magmatic-Volcanic Complexes of Herberton Mineral Field, Northeast Queensland, Australia	**Alexander Farrar** - Lithospheric architecture of the central Andes and the localization of giant porphyry copper deposits during key geodynamic epochs	**Glen Nwaila** - Spatial conditioning of machine learning algorithms for geoscience applications	
10:30 – 10:45	**Denis Fougerouse** - Nanoscale heterogeneous distribution of Ge in plastically deformed sphalerite	**Xin Ni Seow** - Aluminium phosphate-sulfate (APS) minerals: a new potential exploration tool in porphyry – high-sulfidation epithermal deposits	**Enzo Caraballo** - Trace element composition of chalcopyrite as a tool for deposit type recognition: a machine learning approach	
10:45 – 11:00	**Giovanni Pedemonte** - Critical metals in sphalerite: A case study from the distal Zn-Pb(-Ag) skarn deposit of Santander, Central Peru	**Mike Baker** - Discrimination of magmatic-hydrothermal events using quartz texture and mineral chemistry	**Jessica Stromberg** - Generating Multiscale, Multivariate Geology Logs from Hyperspectral Outputs	
11:00 – 11:15	SPEED TALK (11:00 – 11:05) **Ella Lausberg and Owen Missen** - Tellurium nanoparticle formation as evidence of tellurium biogeochemical cycling	**Maria Paula Castellanos Melendez** - Lifetime of the magmatic system and porphyry dike emplacement in the Yerington district, Nevada, USA: Is it a matter of time?		

11:15 – 11:30		**Madeleine Ince** - Geochronology (U-Pb, Re-Os) of Cu-Mo-Au mineralisation at the Taca Taca Bajo porphyry deposit, northwest Argentina.		
11:30 – 11:45		**Liz Lobo** - Vein types, ore mineralogy and trace element deportment from the central, deeper part of the Assarel porphyry Cu-Au deposit, Bulgaria		
	10A	**10B**	**10C**	
12:00 – 13:30	**Metallogeny of Central Tethyan Belt** Chair: Hooshang Asadi Haroni	**Intermediate and low sulfidation epithermal deposits and geothermal systems** Chair: Mark Simpson Co-Chair: Isabelle Chambefort	**Trace elements in minerals: where do we stand on the road between the holy grail and a can of worms? - 2 of 2** Chair: Nigel Cook	
12:00 – 12:15	KEYNOTE **Hooshang Asadi Haroni** - A Carlin-type gold mineral system for exploration targeting in NW Iran	**N. Kieran Kristoffersen** - Ammonium associated with the Favona epithermal gold deposit in the Coromandel peninsula, New Zealand: its distribution and source	**Brayam Ortiz-Benavente** - Indium, germanium, gallium, and other trace elements in sphalerite, enargite, and colusite from high-sulfidation polymetallic mineralization: preliminary data from the Colquijirca district, central Peru	
12:15 – 12:30		**Stephanie Lohmeier** - Banded quartz veinlets – Evidence of silica precursors at the Cerro Maricunga/Fenix gold deposit, Maricunga belt, northern Chile	**Johann Culqui** - Trace element contents in sphalerite, chalcopyrite, and galena in ore deposits from Peru – A meta-analysis	
12:30 – 12:45	**Peter Kodera** - External controls in metal endowment and styles of mineralization in andesitic volcanoes – example from the Štiavnica stratovolcano, Slovakia	**Mark Simpson** - Hydrothermal minerals in epithermal deposits and geothermal systems New Zealand: the connection	**Sławomir Mederski** - Trace elements in sphalerite from the Kizhnica-Hajvalia-Badovc ore field, Kosovo: an example of In-bearing sphalerite	

12:45 – 13:00	**François Turlin** - Magmatic, tectonic and metallogenic evolution of the Eastern Pontides, Turkey: a protracted or discrete construction of the crustal fertility?	**John Emmanuel Fungo** - Listwanite-hosted epithermal gold mineralization in anisland arc: Insights from the Malabeg Prospect, Cabangan, Zambales, Philippines	**Max Hohl** - Trace Element Systematics of Magnetite from the Starra IOCG system, NW Queensland, Australia	
13:00 – 13:15	**Robert Moritz** - Episodic ore deposit genesis during protracted orogenic evolution: Lessons from the Anatolide-Lesser Caucasus-Iranian segment of the Central Tethyan metallogenic belt	**Yuji Gonoi** - Application of Chlorite Geothermometry to the Hishikari Gold Mine, Japan: Implication for the Upflow Zone in the Low-Sulfidation Epithermal System	**Marie Kieffer** - Trace Elements in Apatite Record Differentiation Processes in Sept-Iles Mafic Layered Intrusion	
13:15 – 13:30			**Nikolaos Zegkinoglou** - Fluid-mediated coupled dissolution-reprecipitation (CDR) reaction drives gold remobilization in shallow-water massive sulfides at the Kolumbo arc-volcano, Greece	
13:30 – 13:45			**Sushmita Bhandari** - Feldspar and muscovite chemistry from Be-Nb-Ta mineralized Yamrang Pegmatite, Eastern Nepal Himalaya	
14:00 - 15:00	Plenary session 7 - Discussion session -The future of the minerals industry; essential for modern lifestyles and climate change mitigation or environmentally and socially problematic? Chair: Simon Jowitt			
	11A		**11C**	
20:00 - 21:30	**Metallogenic processes within mafic-ultramafic magmatic systems - 2 of 2** Chair: David Holwell Co-Chair: Margaux Le Vaillant		**Spatial data analysis for mineral exploration – 3 of 4** Chair: Arianne Ford Co-Chair: John Carranza	
20:00 – 20:15	**Margaux Le Vaillant** - Study of magmatic sulfide melt infiltration into an		**John Carranza** - Stochastic Uncertainties Due to Training Deposits for Data-Driven Mapping of Mineral	

	unconsolidated silicate mush - analogue modelling		Potential: Challenges and a Proposed Solution	
20:15 – 20:30	**Jonathan Garcia** - Evolution of the Ni-Cu-PGE ore system in the middle part of the Norilsk 1 intrusion: Insights into the single vs multiple magma pulses model		**Vesa Nykänen** - Cobalt prospectivity in Finland	
20:30 – 20:45	**William Smith** - Microtextural observations from the Merensky Reef and Boulder Bed of the western Bushveld Complex: Implications for the formation of chromitiferous PGE reefs		**Luis Pizano** - 2D Mineral Predictive Mapping with Machine Learning Algorithms in Colombia	
20:45 – 21:00	**Dieter Rammlmair** - Mesoscopic Aspects of Chromitite from UG2, Bushveld Complex, SA.		**Kirsti Loukola-Ruskeeniemi** - Country-wide Black Shale Mapping using Airborne Geophysics and Petrophysical, Geochemical and Modelling Studies	
21:00 – 21:15	**Kate Canham** - Chromitite-associated PGE-(Ni-Cu) mineralization in the Lower Zone of the northern Bushveld: new insights from Zwartfontein.		**Marko Holma** - Exploration and resource delineation of bauxite deposits using cosmic-ray muons	
21:15 – 21:30	SPEED TALKS **David A.B. Unganai** - Textural characterization of the Fe-Ti oxides from the Tete Suite, Mozambique **Diego Domínguez-Carretero** - Trace elements in chromite ores from the Mayarí-Baracoa ophiolitic belt (eastern Cuba)		**Leonardo Feltrin** - Estimating grade and tonnage of mineral deposits on imputed data: an improved workflow for undiscovered mineral resources assessments	
22:00 – 23:30	Plenary session 8 Keynote speakers - Exploration and production theme: Angela Escolme, Tobias Schlegel and Anita Parbhakar-Fox Chair: Michael Gazley			

	12A	12B	12C	12D
00:00 – 01:30 *Thursday 31 March*	**Enrichment mechanisms and processes of critical metal deposits** Chair: Shao-Yong Jiang Co-Chair: Wei Chen	**Uranium mineral systems and exploration methods** Chair: Alex Otto	**Sediment hosted Carlin gold and other types of deposits** Chair: Murray Hitzman Co-Chair: Jens Gutzmer	**From sustainable mining to sustainable mining regions - 3 of 3** Co-Chair: Agnès Samper Co-Chair: Marie Forget Co-Chair: Magali Rossi
00:00 – 00:15	**Nicolas Saintilan** - Giant Co-Ni arsenide mineralization resulting from cold hydrocarbon seep and Upper Devonian brine circulation in Neoproterozoic serpentinite (Bou Azzer, Morocco)	**Christophe Bonnetti** - Magmatic-related U-(Th) hydrothermal mineralization in the Xiangshan volcanic complex, South China	**Haruna M. Grema** - Diagenetic constraints on the formation and replacement of bedded barite in the Selwyn Basin, Canada	**Agnès Samper** - Will there be enough metals for the energy and digital transitions?
00:15 – 00:30	**Robert Dunst** - Mobility of REEs during alkali alteration, Bergslagen Sweden	**Andy Wilde** - Towards a Mineral Systems Model for Leucogranite-Hosted Uranium Deposits	**Yingchao Liu** - A novel method of age constraint on Mississippi Valley-type Pb-Zn deposits by palynomorphs: A case study of the Changdong deposit in China	**Konstantin Kühnel** - Analyzing environmental and social incidents in mining: Implications for raw material criticality assessments
00:30 – 00:45	**Julian Menuge** - Spodumene pegmatites: linked crystallization and fluid expulsion, and their implications for ore formation	**Alex Otto** - Post-Magmatic Alteration of Uranium Mineralization In The Damara Orogen	**Alexander Antonov** - Typical features of Carlin type gold deposits (CTGD) – how consistent are they? KTGD (Kyzylkum type gold deposits), Uzbekistan, Southern Tien-Shan, vs CTGD	**Vincent Bos** - (Dis)connecting spaces and stakeholders: Lithium materialities in Australia and Latin America
00:45 – 01:00	**Guoxiang Chi** - LA-ICP-MS mapping of sandstone from the Proterozoic Athabasca Basin (Canada) – implications for REE and unconformity-related U mineralization	**Andy Wilde** - Mineral Systems Model for Surficial Uranium Deposits	**Maxim Rudmin** - A new genetic model for marine ooidal iron ore deposits in Western Siberia, Russia	**Marie Forget** - Building Transition Resources. Geo-legal approaches to lithium brines in the salt flats of South America
01:00 – 01:15	**Alexis Ndongo** - Textural and geochemical characterization of Bangombe and Bignomi manganese ore deposit in the francevillian series, Gabon: Insights for better exploration and exploitation strategies.	**Judith Kinnaird** - Uranium exploration: when assays are not enough	**Xiaohui Sun** - Genesis of the Gongchangling BIF-related high-grade magnetite ore in the Anshan-Benxi area, North China Craton	**Aurélien Reys** - From promises to storytelling. The use of narrative in social risk reduction by a junior mining company in France.

01:15 – 01:30	**François Turlin** - How can a peraluminous melt accumulate thousands ppm of light rare earth elements?		**Liam Courtney-Davies** - Direct dating of iron ore using U-Pb & (U-Th)/He: Time to reconsider the geochronology of Pilbara iron deposits?	
01:30 – 01:45	**Ivo Martins** - Geochemistry and ore-forming processes of multistage granitic magmatism in the Central Iberian Zone: Segura-Panasqueira Belt (Portugal) case study			
01:45 – 01:50	SPEED TALK **Lívia Leskóné Majoros** - Critical elements from the Tapolcsány Formation (Uppony Mts., NE-Hungary)			

Day 4, Thursday 31 March				
	13A	**13B**		
08:00 – 09:30	**VMS Systems: modern and ancient - 2 of 2** Co-Chair: Melissa Anderson Co-Chair: Hannah Grant	**Ore forming processes and regional settings, including pegmatite-related critical metal deposits** Chair: Tony Christie		
08:00 – 08:15	KEYNOTE **John Jamieson** - Evaluating Hydrothermal Episodicity and Rates of Ore-Forming Processes at the Seafloor	**Yan Luan** - Metallogenic processes of the Tongchang copper-iron deposit: constraints from the in-situ S isotopes		
08:15 – 08:30		**Bénédicte Cenki** - Heavy Rare Earth Elements potential of the Entia Pegmatite Field, Central Australia		
08:30 – 08:45	**Jorge M.R.S Relvas** - Replacement or plume fallout? Both, please! Evidence from active and fossil VMS systems	**George Case** - Flake graphite mineralization related to paragneiss anatexis at the Graphite Creek deposit, Alaska		

08:45 – 09:00	**Clifford Patten** - Ultramafic-hosted volcanogenic massive sulfide deposits: an overlooked sub-class of VMS deposit forming in complex tectonic environments	**SILVANA STIPETICH** - Role of massive anhydrite bodies in the Cordilleran-type polymetallic mineralization of Morococha district, Peru: 3D geological modeling and Sr-S-O isotope constraints		
09:00 – 09:15	**Simon Hector** - Metal sources in magmatic-hydrothermal systems: case study of the Kolumbo seafloor massive sulfide	**Johan Ramirez** - Isotopic compositions of sulfides (S) and anhydrite (S, O, Sr) from the Ayawilca polymetallic deposit, Pasco, Peru		
09:15 – 09:30	SPEED TALKS **Nikolaos Zegkinoglou** - Deciphering thallium deportment and remobilization in shallow-water massive sulphides at the Kolumbo arc-volcano, Greece: evidence from in situ LA-ICP-MS study and thallium-isotope fractionation **Jun-ichiro Ishibashi** - Sulfide and sulfate mineralization within a volcanic conduit located in an active hydrothermal field in the Okinawa Trough	**Kateryna Poliakovska** - Geological setting, geochemistry and petrology of the granitic pegmatites, hosting REE-Th-U mineralization at the Alces Lake area, Northern Saskatchewan, Canada		
09:30 – 09:35		SPEED TALK **Philippe Mukonki** - The Massif 1 of the Bakwanga Kimberlite field: facies and diamond potential (Kasai craton, D.R. Congo)		
	14A	**14B**	**14C**	
10:00 – 11:30	**Porphyry and high sulfidation epithermal deposits - 3 of 3** Chair: David Cooke Co-Chair: Lejun Zhang	**Iron oxide copper gold (IOCG) deposits** Co-Chair: Michael Anenburg Co-Chair: Jonathan Cloutier	**Spatial data analysis for mineral exploration - 4 of 4** Chair: Arianne Ford Co-Chair: John Carranza	
10:00 – 10:15	**Rhiannon Jones** - The significance of phyllic alteration at the E26 porphyry	**Perumala Venkata Sunder Raju** - Radon gas anomaly signatures to	**Rita Chirico** - PRISMA Hyperspectral Remote Sensing for Exploration of Co-	

	Cu-Au deposit, Northparkes, NSW, Australia	identify the concealed IOCG prospectivity and exploration targeting	Ni Deposits: Example from the Punta Corna Cobalt Project (Piedmont, Italy)	
10:15 – 10:30	**Lillian Kendall-Langley** - Cu-Au porphyry fertility of Lachlan Orogen intrusions - insights from apatite inclusions in zircon	**Yuri Tatiana Campo Rodriguez** - Unveiling the polyphasic evolution of the IOCG Salobo deposit, Carajás Mineral Province, Brazil: Insights from Magnetite Trace Elements and Sulfur Isotopes	**Tatiana Pilitsyna (Pavlova)** - Prospects for Gold Content in the North-East of Russia with an Assessment of the Geochemical Specialization of Ore-Bearing Structures	
10:30 – 10:45	**Thomas Matthews** - Chemistry and discrimination of igneous and hydrothermal titanite from the Cobre Panama porphyry Cu district	**Maria Emilia Schutesky** - The Neoarchean Carajás IOCG System, Brazil, in the light of the crustal evolution of the Amazonian craton	**Angel Augusto Verbel Olarte** - Multivariate Geochemical Analysis Applied to Mineral Exploration in Andean-Type Tectonic Setting	
10:45 – 11:00	**Azam Soltani Dehnavi** - Porphyry and Epithermal Systems in the northern Andes of Ecuador: A Geological Overview	**Jeffrey Steadman** - Controls on Fe-Ti oxide formation in the Cloncurry district, Mt. Isa Inlier, NW Queensland: Insights from Ernest Henry and Starra 222	**Richard Lynch** - Cover mapping using ambient noise surface wave tomography	
11:00 – 11:15	**Jonathon Hoye** - Host-rock driven compositional and morphological differences in porphyry Cu-Au systems – examples from the Northparkes district, NSW, Australia	**Margarita Melfou** - Apatite halogen chemistry reveals the origin of late metasomatic and ore-forming fluids in the Nautanen IOCG deposit, Norrbotten, Sweden	**Mark Jessell** - Geological Distance	
11:15 – 11:30	**Cyril Chelle-Michou** - $ or $$$? Estimating the size of porphyry Cu deposits early on	SPEED TALK **Pei Liang** - Deciphering fluid origins in the Paleozoic iron oxide-Cu-Au (IOCG) deposits, East Junggar, NW China: constraints from noble gases and halogens		
11:30 – 11.45	**George Stonadge** - Halogen and Sulphur Evolution from Apatite in Porphyry-like Volcanic Systems, West Luzon Arc, Philippines			
12:00 – 13:30				

	Plenary session 9 - Keynote speakers - Exploration theme: Keenan Jennings, David Cooke and Scott Halley Chair: Mark Simpson			
14:00 – 15:00	Plenary session 10 - Discussion session - Geoscience outreach – how can Baby Boomers connect with Gen-Z? Chair: Dale Sims			
	15A	**15B**	**15C**	
22:00 – 23:30	**Gold in metamorphic terranes — new research approaches, new models, and new target areas - 2 of 2** Chair: Pasi Eilu Co-Chair: Iain Pitcairn	**Antimony and related elements mineralisation: magmatism, fluids and sediments** Chair: Eric Gloaguen Co-Chair: Pablo L. Higueras Co-Chair: Giada Iacono-Marziano	**Mineral exploration in weathered and covered terrains** Chair: Walid Salama Co-Chair: Ryan Noble Co-Chair: David Cohen	
22:00 – 22:15	**Quentin Masurel** - New insights into the Neoarchean geological evolution of the Yilgarn Craton and implications for gold explorers	KEYNOTE **Anthony Pochon** - Toward a better understanding of Sb metallogeny in the Variscan belt	**Walid Salama** - Indicator minerals and geochemical footprints in cover over the Nova-Bollinger Ni-Cu-Co sulphides, Western Australia	
22:15 – 22:30	**Andreas Mueller** - Archean intrusion-related Au-Te and Cu-Au deposits in the Boulder Lefroy-Golden Mile fault system, Western Australia: an overview		**Ryan Noble** - Size matters: why smaller soil particle sizes improve exploration geochemistry through cover	
22:30 – 22:45	**Ravi Schreefel** - The Gruyere gold deposit (Yilgarn Craton, Australia): lithostratigraphy, hydrothermal alteration, mineralisation and timing (U-Pb, Re-Os) constraints	**Valentin Mollé** - Determination of the processes behind Sb, As and W enrichment in magmas using geochemical databases	**Ben Cave** - Bedrock Mapping Under Cover in the Fraser Zone of the Albany-Fraser Orogeny, Western Australia; The Role of Broad-spaced, Cost-effective, Drilling and Routine Lithogeochemistry	
22:45 – 23:00	**Sumail** - Controls on high-grade versus refractory mineralisation in Archean orogenic gold systems	**Julian Vearncombe** - Antimony mineralisation: the Archaean Murchison Belt, South Africa	**Chloe Plet** - Improving precious metal detection in groundwater. A comparison of sorbents	

23:00 – 23:15	**Susanne Schmid** - Integrated geochemical, sedimentological and structural interpretation of the Palaeoproterozoic Granites-Tanami Orogen – vectoring towards gold mineralisation	**Alex Vella** - Metallogeny of Sb along the Ibero-Armorican Arc: insight from data-driven prospective mapping		
23:15 – 23:30	**Jose Maria González-Jiménez** - Fracture-hosted Fe-Hg mineralization in the Orihuela dolerite, Betic Cordillera, SE Spain	**Héctor Ricardo Campos Rodríguez** - Mafic magmatism and Sb mineralization: Geochemical insights from the Central Iberian Zone, Spain.		
23:30 – 23:45	SPEED TALK (23:30 – 23:35) **Daniel Wiemer** - Inheritance of Trans-Lithospheric Structures and Fossil Ore-Fertile Mantle Source Domains at Long-Lived Supercontinent Margins	**Pablo Higueras** - Antimony mineralizations in the Guadalmez syncline - relationships with Almadén mercury ones. South-Central Spain.		
23:45 – 00:00		**José María Esbrí** - Geochemistry of antimony mineralizations in La Balanzona y Accesos mines, Central Iberian Zona, Spain.		
00:00 – 01:00 *Friday 1 April*	Plenary Session 11 | Keynote speaker (Sandra Occhipinti), "An industry perspective on SGA looking forward" (Cam McCuaig), Official Closing, and Invitation to the 17th SGA Biennial Meeting in Zurich, 2023 Chair: Tony Christie			

Theme key		
Mineral resources for the carbon neutral economy	Geometallurgy	Sustainable mining and environmental issues
Specific mineral systems	New research and exploration developments	Social performance and acceptance
Ore-forming processes		