

Themes & Sessions

Theme 01: Planetary Evolution and Astrobiology

Dave Des Marais & Malcolm Walter

- 01a** Isotopic Heterogeneity Among Planetary Precursors and its Implications for Planetary Evolution (*Fred Moynier & Justin Simon*)
Orals: Tue PM Posters: Tue PM
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- 01b** Early Accretion and Differentiation Processes on Planets and Planetesimals (*James Day, Amy Riches & Josh Emery*)
Orals: Wed AM Posters: Tue PM
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- 01c** The Moon 40 Years after Apollo: Origin, Evolution and Volatiles (*Tomas Magna, Lawrence A Taylor & Yang Liu*)
Orals: Mon PM Posters: Mon PM
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- 01d** The New Mars: Geochemistry of a Neighbor Planet (*Dave Des Marais & Scott M McLennan*)
Orals: Tue AM Posters: Tue PM
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- 01e** Mantle-Atmosphere Interactions on Earth and Beyond (*Colin Goldblatt & Kevin Zahnle*)
Orals: Thu PM Posters: Thu PM
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- 01f** Origins of Life: Environments, Mineral Surfaces and Prebiotic Chemistry (*Dimitri A Sverjensky, Robert M Hazen & George Cody*)
Orals: Fri AM Posters: Thu PM
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- 01g** Geomicrobiology of Redox Stratified Ecosystems (*David Fowle & Jennifer Macalady*)
Orals: Tue PM Posters: Tue PM
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- 01h** Frontiers in Analytical Cosmochemistry (*Dante Lauretta, Brad Jolliff & Andy Davis*)
Orals: Mon AM Posters: Mon PM
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Theme 02: Evolution of the Early Earth

John Valley & Vickie Bennett

- 02a** Evidence of Impacts from the Early Earth (*Aaron Cavosie & Des Moser*)
Orals: Fri PM Posters: Thu PM
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- 02b** Geodynamic and Petrogenetic Processes in the Early Earth: Insights from Greenstone Belts, TTGs, and Layered Anorthosite Complexes (*Ali Polat, Robert Kerrich & Jonathan O'Neil*)
Orals: Fri PM Posters: Thu PM
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- 02c** Life Before the Rise of Oxygen (*Dominic Papineau & Malcolm Walter*)
Orals: Fri AM Posters: Thu PM
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- 02d** Precambrian Sediments as Records of Early Earth Tectonics and Ocean-Atmosphere-Biosphere Interactions (*Huifang Xu, Chris Fedo & Andrew Czaja*)
Orals: Thu AM, Thu PM Posters: Thu PM
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- 02e** The First 500 Million Years (*Rick Carlson & Maud Boyet*)
Orals: Thu PM Posters: Thu PM
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- 02f** The Evolutionary History of Sulfur Metabolisms: Innovation, Ecology, and their Role in Earth's Evolving Geochemistry (*James Farquhar, Dirk de Beer, David T Johnston & Samantha (Mandy) B Joye*)
Orals: Mon AM
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Theme 03: Deep-Earth Processes: Core and Mantle

Steve Shirey, Bernard Bourdon & Bernie Wood

- 03a** Volatiles in Earth & Planetary Interiors (*Erik H Hauri, Rajdeep Dasgupta, Alison Shaw, Adrian Jones & Justin Filiberto*)
Orals: Fri AM Posters: Thu PM
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- 03b** Mantle Reservoirs and their Creation (*Matthew G Jackson, Rajdeep Dasgupta & James Day*)
Orals: Mon PM, Tue AM Posters: Mon PM
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- 03c** Peridotites and Eclogites: Compositions, Textures and Microscale Mineralogy (*Ambre Luguet, Dorrit Jacob & Dmitri Ionov*)
Orals: Tue PM Posters: Tue PM
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- 03d** New and Old Paradigms on the Origin and Evolution of Continental Lithosphere (*Sonja Aulbach, Veronique Le Roux, Nina Simon & Cin-Ty Lee*)
Orals: Mon AM Posters: Mon PM
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- 03e** Reading the Mantle Signal in Basalt Compositions (*John MacLennan & Andreas Stracke*)
Orals: Wed AM Posters: Tue PM
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- 03f** Experimental Petrology of the Mantle and Core (*Michael J Walter, Oliver Lord & Reidar Tronnes*)
Orals: Thu AM Posters: Thu PM
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- 03g** Geochemical Signatures of Mantle Redox Processes (*Abby Kavner, Andrew Campbell & Catherine A McCammon*)
Orals: Tue AM Posters: Tue PM
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- 03h** Analytical, Experimental and Theoretical Aspects of Stable Isotope Fractionation at High P and T: Implications for Planetary Evolution (*Helen M Williams & Anat Shahar*)
Orals: Mon AM Posters: Mon PM
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- 03i** Trace Element Partitioning (*Wim van Westrenen, James Van Orman & John Ayers*)
Orals: Thu AM Posters: Thu PM
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- 03j** Origin and the Evolution of the Earth's Core (*William F McDonough, Reinhard Boehler & Alexandre Corgne*)
Orals: Fri PM Posters: Thu PM
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- 03k** Fluid-Mineral Interactions in the Deep Crust and Mantle (*Dimitri A Sverjensky, Craig Manning, Yingwei Fei & Ronald Cohen*)
Orals: Thu PM Posters: Thu PM
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- 03l** The Compositions of the Earth, the Earth-Moon System, and the Terrestrial Planets (*Hugh O'Neill & Alan Brandon*)
Orals: Fri PM Posters: Thu PM
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Theme 04: Physics and Chemistry of Earth Materials

Rod Ewing, David Vaughan & Georges Calas

- 04a** Chemical and Biological Processes at Mineral Surfaces: Influence on Contaminant Dynamics (*John Bargar, Marc Michel, David Singer & Per Persson*)
Orals: Fri AM, Fri PM Posters: Thu PM
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- 04b** Protolytic Equilibria and Kinetics at Interfaces Probed on Different Scales (*David J. Wesolowski, William H. Casey & Johannes Lützenkirchen*)
Orals: Mon AM Posters: Mon PM
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- 04c** Solute Transport in Low Permeability Rocks: Hydrogeochemical and Mineralogical Studies (*Tom Al, Richard Jackson & Ian Clark*)
Orals: Mon PM Posters: Mon PM
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- 04d** Uranium in the Environment (*Mostafa Fayek & Michel Cuney*)
Orals: Wed AM Posters: Tue PM
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- 04e** Geochemistry far from Equilibrium (A Session Celebrating the 5th Anniversary of Elements Magazine) (*Bruce Watson & Michael Hochella*)
Orals: Thu AM, Thu PM
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- 04f** Atmospheric Dust (*Reto Gieré, Bernard Grobéty & Peter Stille*)
Orals: Fri AM, Fri PM Posters: Thu PM
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- 04g** Clays and Trace Metals in the Environment (*Thierry Allard & Paul Bertsch*)
Orals: Fri AM Posters: Thu PM
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- 04h** Effect of System Heterogeneity on Carbonation and Carbonate Mineralization (*Huifang Xu, Henry Teng, Mónica Sánchez-Román & Jennifer Roberts*)
Orals: Tue AM Posters: Tue PM
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- 04j** Interfacial Processes in the Environment (*Laurent J. Michot, Fabien Thomas & Jérôme F.L. Duval*)
Orals: Tue PM Posters: Tue PM
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- 04l** Earth Materials: Thermodynamic and Energetic Properties (*Charles A. Geiger & Artur Benisek*)
Orals: Tue PM Posters: Tue PM
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- 04m** Physical and Chemical Interactions in Biomineralization (*Udo Becker & Henry Teng*)
Orals: Tue AM Posters: Tue PM
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- 04n** Exploring Biomolecules in Terrestrial Carbon Sinks – The Organic Biogeochemistry of Peats and Soils (*Sylvie Derenne & Geoff Abbott*)
Orals: Tue AM Posters: Tue PM
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- 04o** Geochemistry and Trace Elements in gem Materials (*Emmanuel Fritsch & Benjamin Rondeau*)
Orals: Mon PM Posters: Mon PM
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- 04p** Mineral Magnetism: Providing New Insights into Geoscience Processes (*Joshua M. Feinberg & Richard J. Harrison*)
Posters: Mon PM
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Theme 05: Evolution of Oceanic Crust and its Hydrothermal Systems

Bill Seyfried & Wolfgang Bach

- 05a** Ridge-Crest Hydrothermal Systems: New Insights from Field, Laboratory, and Theoretical Studies (*Jeffery Seewald & Jun-Ichiro Ishibashi*)
Orals: Mon PM Posters: Mon PM
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- 05b** Hydrothermal Alteration of Oceanic Crust at Slow Versus Fast Spreading Ridges (*Jeffrey Alt & Damon Teagle*)
Orals: Mon AM Posters: Mon PM
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- 05c** Dynamics and Energetics of Seafloor Hydrothermal Systems (*Andrew McCaig, Mathilde Cannat & Fabrice Fontaine*)
Orals: Mon AM Posters: Mon PM
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- 05d** Hydrothermal Organic Geochemistry (*Everett Shock & Mitchell Schulte*)
Orals: Tue PM Posters: Tue PM
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- 05e** Geomicrobiology of Mid-Ocean Ridge Systems: Connections Among Subseafloor, Plume, and Low-Temperature Alteration Environments (*Brandy M Toner, Gregory Dick & Jason Sylvan*)
Orals: Tue AM Posters: Tue PM
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Theme 07: Fluids, Magmas and Hydrothermal Ore Formation

Peter Larson & Chris Heinrich

- 07a** Vertical Evolution of Hydrothermal Ore-Forming Systems: From the Mantle to the Surface (*James A Saunders & David John*)
Orals: Wed AM Posters: Tue PM
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- 07b** Fluid and Melt Inclusions: The State of the Science and Future Prospects (*Robert Bodnar & Volker Luders*)
Orals: Tue AM Posters: Tue PM
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- 07c** Processes at the Source – Nano to Tectonic Scale Forces Driving Ore Formation (*Iain Pitcairn & Holly Stein*)
Orals: Mon PM Posters: Mon PM
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- 07d** Mineral Nanoparticles and Nanominerals in Ore Systems and their Environmental Geochemistry (*Martin Reich, Satoshi Utsunomiya & Robert Hough*)
Orals: Mon PM Posters: Mon PM
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- 07e** Accessory Phase Elemental and Isotopic Geochemistry: Micro-Analytical Tools and Petrologic Applications (*Rita Economos, John Ayers & John Dilles*)
Orals: Mon AM Posters: Mon PM
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Theme 08: Metamorphism over Multiple Length and Time Scales

Barb Dutrow & Bjørn Jamtviet

- 08a** Frontiers of Ultrahigh Pressure Metamorphism: Mineral Reactions, Isotope Characteristics, Phase Transformations, Fluids and Solid State Flow (*Larissa Dobrzhinetskaya, Hirochika Sumino, Ruth Zhang & JingSui Yang*)
Orals: Wed AM Posters: Tue PM
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- 08b** Advances in Monazite, Xenotime, and Zircon Geochronology: Utilizing Alteration and Deformation to Date Multiple Events (*Daniel Harlov, Michael Williams & Gregory Dumond*)
Orals: Tue PM Posters: Tue PM
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- 08c** Geochemical Processes in Continental Collision Zones (*Yong-Fei Zheng, Bill C. McClelland, Shuguang Song, Simon Cuthbert & Lingsen Zeng*)
Orals: Thu AM, Thu PM, Fri AM Posters: Thu PM
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- 08d** Formation and Destruction of Cratons (*Stephen FOLEY & Shan GAO*)
Orals: Fri AM Posters: Thu PM
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- 08e** The Eclogite – Arc Magma Connection: Linking Metamorphic and Igneous Processes at Subduction Zones (*Maureen Feineman, Sarah Penniston-Dorland, Alicia Cruz-Uribe & Jeffrey Ryan*)
Orals: Fri PM Posters: Thu PM
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- 08f** Linking Sample-Scale Metamorphism with Orogen-Scale Processes: Applications to and Results from Thermo-Mechanical Modeling (*Jennifer Chambers & Mark Caddick*)
Orals: Fri PM Posters: Thu PM
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- 08g** Simulation of Metamorphic Processes – Theory, Experiments, and Numerical Models (*Peter Nabelek & Jay Ague*)
Orals: Thu AM Posters: Thu PM
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- 08h** Nano-Scale Processes and the Transport of Elements and Isotopes (*Igor M Villa & Daniel Harlov*)
Orals: Thu AM Posters: Thu PM
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Theme 09: Geochemistry of Energy Systems

Yousif Kharaka & Richard Worden

- 09b** Geochemistry of Non-Hydrocarbon Gases in Energy Systems (*Alain Prinzhofer, Yongchun Tang & Richard Worden*)
Orals: Fri PM Posters: Thu PM
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- 09c** Geochemistry, Mineralogy and Sandstone Diagenesis: From Syn-Depositional Environments Through to Deep Burial (*Andy Thomas, Joann Welton & Per Aagaard*)
Orals: Mon AM Posters: Mon PM
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- 09d** Fracturing and Cementation; Geochemical and Mechanical Feedback Processes (*Stephen E. Laubach & Richard Worden*)
Posters: Mon PM
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- 09e** Petroleum Source Rocks: Geochemistry, Deposition and Distribution (*Andy Fleet*)
Orals: Mon AM Posters: Mon PM
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- 09f** Geochemistry of CO₂ Sequestration: Theory, Modeling, and Field and Laboratory Results (*Chen Zhu, Eric Oelkers, John Kaszuba & Juerg Matter*)
Orals: Fri AM, Fri PM Posters: Thu PM
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- 09g** Geochemistry of CO₂ Sequestration: Isotopic Indicators of Carbon Capture, Storage and Migration in Natural and Engineered Systems (*Brian W Stewart & Rosemary C Capo*)
Orals: Thu PM Posters: Thu PM
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- 09h** Microbial Degradation of Organic Substrates and Generation of Natural Gas and Heavy Oil in Sedimentary Basins (*Jennifer McIntosh, Peter Warwick & Alain Huc*)
Orals: Thu AM Posters: Thu PM
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- 09i** Gas Hydrates: Energy Production and Storage, Carbon Sequestration, and Climate (*Megan Elwood Madden & Claudia Rawn*)
Orals: Thu AM Posters: Thu PM
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- 09j** New Horizons in Coal Science: Organic Petrology, Geochemistry, and Environmental Effects (*Leslie Ruppert, Shifeng Dai & Hamed Sanei*)
Orals: Tue PM Posters: Tue PM
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- 09k** Abyssal Abiogenic Origin of Petroleum: From Geological Assessment to Physical Theory (*Vladimir Kutcherov & Anatoly Zolotukhin*)
Orals: Tue PM, Wed AM Posters: Tue PM
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- 09l** Fluid-Rock Interaction in Geothermal Systems: Field, Experiment and Modeling (*Thomas Driesner, Andri Stefansson & Ferdinand F. Hingerl*)
Orals: Wed AM Posters: Tue PM
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- 09m** Modeling and the Reality of Radionuclide Transport in the Environment (*Mark Fuhrmann, Pierre Glynn & Todd Anderson*)
Orals: Tue AM Posters: Tue PM
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- 09n** Produced Waters from Development and Generation of Energy: Characterization, Treatment, and Beneficial Use (*Mark Engle & James Castle*)
Orals: Mon PM Posters: Mon PM
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- 09o** Impact of Energy Use on Human Health and the Environment (*Allan Kolker, William Orem & Liliana Lefticariu*)
Orals: Mon PM Posters: Mon PM
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Theme 10: Global Element Cycles and Climate Change

Andy Jacobson & Anton Eisenhauer

- 10b** Present-Day Oceanic Cycling of Trace Metals and their Isotopes (*Anton Eisenhauer*)
Posters: Thu PM
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- 10c** Developing a Better Picture of Earth's Deep Sulfur Cycle (*Charles W. Mandeville, Nobumichi Shimizu & Nicole Keller*)
Orals: Fri PM
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- 10d** Microbial Sulfur Transformations: Past, Present, and Away (*Annette Summers Engel, Stefanie Gruenke, Jennifer Macalady, Stefan Sievert & Alexis Templeton*)
Orals: Thu PM Posters: Thu PM
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- 10e** Chemical and Isotopic Perspectives on Global Elemental Cycling in Modern and Ancient Systems (*Matthew Fantle & Edward Tipper*)
Orals: Fri AM, Fri PM Posters: Thu PM
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Theme 11: Oceans and Atmospheres

Juske Horita, Mitsuo Uematsu & Douglas Wallace

- 11a** Impacts of Atmospheric Deposition on Ocean Chemistry and Biology (*Adina Paytan, Natalie Mahowald, Dale W. Griffin & William Landing*)

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Orals: Mon AM Posters: Mon PM

- 11b** Connecting Oceanic Emissions, Aerosols, and Maritime Clouds: What do We Know and Where Will We go? (*Maria Cristina Facchini & Nicholas Meskhidze*)

Orals: Mon AM Posters: Mon PM

- 11c** Biogeochemical Cycling in Low Oxygen Marine Environments of the Past and Present (*Tom Jilbert, Peter Kraal, Daniel Reed & Caroline Slomp*)

Orals: Mon PM Posters: Mon PM

- 11d** Nutrient Cycling in Permeable Marine Sediments (*William Savidge & Jay Brandes*)

Orals: Tue AM Posters: Tue PM

- 11e** Atmospheric Oxidation of Mercury by Reactive Halogen Species (*Rainer Volkamer, Anthony Hynes & Arnout ter Schure*)

Orals: Tue AM Posters: Tue PM

Theme 12: Reconstruction of Paleoclimate

Ethan Grossman & Caroline Lear

- 12a** New Developments in Geochemical Paleoceanographic Proxies (*Tom Marchitto & Ros Rickaby*)

Orals: Mon PM Posters: Mon PM

- 12b** New Applications of Trace Metals in Siliciclastic Sediments as Proxies for Marine Paleoenvironments (*Thomas Algeo & Anna Cruse*)

Orals: Mon AM Posters: Mon PM

- 12c** The Role of Greenhouse Gases in Phanerozoic Climate Change (*Rich Pancost & Andy Ridgwell*)

Orals: Tue AM Posters: Tue PM

- 12d** Past Ocean Circulation and Climate (*Katharina Pahnke & Stephen Barker*)

Orals: Tue AM Posters: Tue PM

- 12e** Marine-Terrestrial Archives of 'Deep-Time' Climate Change (*Isabel Montanez & Adrian Immenhauser*)

Orals: Tue PM Posters: Tue PM

- 12f** Paleo-Sea Level and Paleo-Ice Volume: Reconstructions and Implications (*eelco rohling, William G. Thompson & Peter Clark*)

Orals: Tue PM Posters: Tue PM

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- 12g** Abrupt Climate Change and Millennial-Scale Climate Variability (*Stephen Barker & Laura Robinson*)
Orals: Wed AM Posters: Tue PM
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- 12h** Role of the Southern Ocean in Global Climate Change (*Laura Robinson & Stephen Barker*)
Orals: Thu AM
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- 12i** Biomineralization: Implications for Paleoclimate and Paleoenvironment Reconstructions (*Alberto Perez-Huerta & Yannicke Dauphin*)
Orals: Thu AM Posters: Tue PM
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Theme 13: Hydrogeochemistry of Surface Earth Processes

Jun Abrajano & Werner Aeschbach-Hertig

- 13a** Impact of Seasons on the Nutrient Dynamics (Natural and Anthropogenic) in the Tropical Aquatic Ecosystems (*Ramanathan Alagappan, M. Bala Krishna Prasad & tbc tbc*)
Orals: Tue PM Posters: Tue PM
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- 13b** Application of Isotopic Approaches to Tracing Contaminant Sources, Transport and Transformations (*Thomas Johnson & Avner Vengosh*)
Orals: Tue PM Posters: Tue PM
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- 13c** Solute and Sediment Geochemistry of Fluvial Systems Past and Present – Sponsored by the International Association of GeoChemistry (*David T Long, W. Berry Lyons, Russell S Harmon, LeeAnn Munk & Sarah Fortner*)
Orals: Wed AM Posters: Tue PM
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- 13d** Geophysical Monitoring of Near-Surface Hydrogeochemistry (*Gregory S Baker, Susan Hubbard & Lee Slater*)
Orals: Fri PM Posters: Thu PM
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- 13e** Formation Mechanisms, Stability, and Distribution of Oxyanions in the Environment (*W. Andrew Jackson, Neil Sturchio, Baohua Gu & John Karl Bohlke*)
Orals: Fri PM Posters: Thu PM
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- 13f** Hydrobiogeochemical Evolution of Groundwater Systems in Natural and Impacted Environments (*Scott Brooks, Debra Philips, David Watson & Paul Bayer*)
Orals: Thu AM Posters: Thu PM
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13g Sustainable Management of Safe Aquifers in Areas Affected by High Groundwater Arsenic (*Yan Zheng & Holly Michael*)
Orals: Thu PM Posters: Thu PM

13h Gases in Groundwater (*Werner Aeschbach-Hertig & Richard Amos*)
Orals: Fri AM Posters: Thu PM

Theme 14: Weathering Interactions in Critical Zone Processes

Art White & Steven Banwart

14a Organo-Mineral Interactions in the Critical Zone: Mineral Weathering and Carbon Stabilization in Soil (*Erika Marin-Spiotta, Jon Chorover, Craig Rasmussen, Lixin Jin, Amanda Olsen & Elisabeth Hausrath*)
Orals: Fri PM Posters: Thu PM

14b Lithologic and Erosional Influences on Critical Zone Processes (*Heather Buss & Clifford Riebe*)
Orals: Fri AM Posters: Thu PM

14c Hydrogeochemical Modeling of Reaction Networks in the Critical Zone (*Chen Zhu & Carl Steefel*)
Orals: Fri AM Posters: Thu PM

14d Biogeochemical Cycle of Silicon: From Land to Ocean (*Suvasis Dixit & Philippe Van Cappellen*)
Orals: Thu AM Posters: Thu PM

14e Isotope Tracers of Critical Zone Processes and Function (*Thomas Bullen & Friedhelm von Blanckenburg*)
Orals: Thu AM Posters: Thu PM

14f Temporal Evolution and Life Cycle of the Critical Zone (*Stefano Bernasconi & Håkan Wallander*)
Orals: Thu PM Posters: Thu PM

14g Biological Weathering in the Critical Zone: From Nano to Global Scale (*Megan Andrews & Kent Keller*)
Orals: Wed AM

14h Critical Zone Processes Across Environmental Gradients (*F. Chabaux, L. Derry & Lin Ma*)
Orals: Thu PM Posters: Thu PM

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Theme 15: Mineral–Microbe Interactions

Jeremy Fein & Andreas Kappler

- 15a** Life in the Cold: The Biogeochemistry of icy Environments
(*Liane G. Benning, Martyn Tranter & Brent C. Christner*)
Posters: Tue PM
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- 15b** Microbial Transformation of Minerals and Humic Substances – Impact on the Fate of Pollutants, Trace Metals and Nutrients
(*Andreas Kappler & Thomas Borch*)
Orals: Mon AM Posters: Tue PM
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- 15c** Non-Traditional Applications of Surface Complexation Modeling of Geologic Systems
(*Carla Koretsky, Jeremy Fein & Daniel Alessi*)
Orals: Mon PM Posters: Tue PM
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- 15d** Microbe – Metal Interactions from the Molecular to Macroscopic Scale
(*Drew Gorman-Lewis & Bryne Ngwenya*)
Orals: Mon PM Posters: Tue PM
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- 15e** Geological Preservation of Microorganisms
(*Gordon Southam & Neil Banerjee*)
Orals: Wed AM Posters: Tue PM
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- 15f** Focus on Phyllosilicates: The Old (Reduction), the New (Oxidation), and the In between (Cycling)
(*Eric Roden & Bill Burgos*)
Orals: Wed AM Posters: Tue PM
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- 15g** Biogeophysics: Novel Tools and Methods for Observing the Effects of Biogeochemistry
(*Aaron Regberg, Peter Schillig & Kristina Keating*)
Orals: Wed AM Posters: Tue PM
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- 15h** Cell-Mineral Interactions: Biological and Geochemical Implications
(*Maria Dittrich & Philippe Van Cappellen*)
Orals: Tue PM Posters: Tue PM
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- 15i** Microbial Redox Transformations of Metal(loid)s and their Implication for Bioremediation
(*Brandy Stewart, Matthew Ginder-Vogel, Chad Saltikov & Carolina Reyes*)
Orals: Thu PM Posters: Thu PM
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- 15j** The Role of Microorganisms in Promoting Carbonation Reactions
(*Gordon Southam & Christopher R. Omelon*)
Orals: Fri PM Posters: Thu PM
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- 15k** Extracellular Electron Transfer and Microbial Mineral Transformation
(*Yuri Gorby & Eric Roden*)

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Orals: Thu PM Posters: Thu PM

15l Iron Geomicrobiology (*Kirsten Küsel & Joel Kostka*)

Orals: Thu AM Posters: Thu PM

15m Microbial Biominerals: Structure, Formation and Applications (*Danielle Fortin, Vernon Phoenix & Rizlan Bernier-Latmani*)

Orals: Fri AM, Fri PM Posters: Thu PM

15n Microbial Transformations of Redox-Sensitive Elements in Extreme Environments (*Britta Planer-Friedrich, Charles Cockell & James Hollibaugh*)

Orals: Thu AM Posters: Thu PM

15o Transformation of Radionuclides by Microorganisms and Minerals (*Toshihiko Ohnuki, Satoshi Utsunomiya, A.J. Francis & A. Abdelouas*)

Orals: Tue AM, Tue PM Posters: Tue PM

Theme 16: Frontiers in Biogeochemistry

Nathaniel Ostrom & Jack Middelburg

16a Applications of Novel Isotope Tracing Techniques to Biogeochemical Cycles (*Nathaniel Ostrom & Stephen Macko*)

Orals: Mon AM, Mon PM Posters: Mon PM

16b Biogeochemical Processes in Aquatic Ecosystems (*Jack Middelburg & Peggy Ostrom*)

Orals: Wed AM Posters: Tue PM

16c Geochemistry and Biogeochemistry of Toxic Elements in the Environment (*Rona J. Donahoe & Dibyendu Sarkar*)

Orals: Thu AM, Thu PM Posters: Tue PM

16e Biogeochemical Controls on Mercury Transformation and Global Cycling (*Baohua Gu, Kathryn Nagy, Xinbin Feng, Liyuan Liang & Thorjorn Larssen*)

Orals: Tue AM, Tue PM Posters: Tue PM

16f Dynamics of Colloidal and Particulate Materials in Rivers and River-Dominated Estuaries (*Yoko Furukawa & Laodong Guo*)

Orals: Mon PM Posters: Tue PM

16g Controls and Small-Scale Dynamics of Biogeochemical Processes in Near-Surface Porous Media (*Christof Meile, Celine Pallud & Aaron Thompson*)

Orals: Thu PM Posters: Thu PM

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- 16i** Methane Fluxes and Turnover in the Marine and Terrestrial Environments (*Alina Stadnitskaia & Helge Niemann*)

Orals: Mon AM Posters: Mon PM

- 16k** Molecular-Scale Interactions of Organic C with Mineral Soils (*Melanie A Mayes, Markus Kleber, Jim Amonette, Georg Guggenberger & Stan Wullschlegler*)

Orals: Fri AM

- 16l** Bridging Isotope Effects in Cellular Metabolism to Environmental Scale Tracer Studies (*Eric Hegg & Helen Kreuzer*)

Orals: Fri PM Posters: Thu PM

Theme 17: Nano-Geo and -Environmental Science: A New Frontier

Michael Hochella & Frank von der Kammer

- 17a** Nanoparticles Important to the Environment: Structure, Reactivity, Analysis (*Frank von der Kammer, Ruben Kretzschmar & Andreas Voegelin*)

Orals: Mon AM, Mon PM Posters: Mon PM

- 17b** Nanogeology: How Nanoparticle Structure and Composition Lead to Function and Reactivity (*Patricia Maurice, Andrew Quicksall, Owen Duckworth, Chongzheng Na & Treavor A. Kendall*)

Orals: Wed AM Posters: Tue PM

- 17c** Looking into the Nanoworld Using X-Rays (*Juergen Thieme & Jeffrey Fitts*)

Orals: Tue PM Posters: Tue PM

- 17d** Retention of Radionuclides at the Mineral-Water Interface with a Focus on Nanoparticles and Solid-Solution Formation (*Andreas Scheinost, Thorsten Stumpf, Dirk Bosback & Thorsten Schaefer*)

Orals: Thu AM, Thu PM Posters: Thu PM

- 17e** Biotic and Abiotic Transformations and Effects of Manufactured Nanomaterials – Fundamental Environmental Aspects (*Jamie Lead, Simon Apte & Gregory V Lowry*)

Orals: Fri AM Posters: Thu PM

- 17f** Biotic and Abiotic Transformations and Effects of Manufactured Nanomaterials – Applied Environmental Aspects (*Gregory V Lowry, Jamie Lead, Mark Wiesner & Kelvin Gregory*)

Orals: Fri PM Posters: Thu PM

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- 17g** Nanomineral Transformations during Biogeochemical Cycles (*Benjamin Gilbert & Steven W Singer*)

Orals: Tue AM

Theme 18: Atomistic and Molecular Modeling of Geochemical Processes

James Kubicki & Daniel Tunega

- 18a** Theoretical High Pressure Mineralogy (*Anatoly Belonoshko & Artem Oganov*)

Orals: Thu PM Posters: Thu PM

- 18b** Elementary Reaction Mechanisms in Geochemistry (*James Rustad, William H. Casey & Andrew Stack*)

Orals: Tue PM Posters: Tue PM

- 18c** Molecular Properties of Aqueous Solutions at Mineral Surfaces and in Nanopores (*Andrey Kalinichev, Claro Sainz-Diaz & Jeffery A Greathouse*)

Orals: Tue AM, Tue PM Posters: Tue PM

- 18d** Pushing Experimental and Computational Limits: A Prospective Look at Mineral-Fluid Interfaces (*Steven R Higgins, Tom Trainor & Andrew Stack*)

Orals: Fri AM Posters: Thu PM

- 18e** Modeling of Nucleation and Growth Processes in Aqueous Environments (*Devis Di Tommaso & Sebastien Kerisit*)

Orals: Fri AM, Fri PM Posters: Thu PM

- 18f** Water in Solids and Solutions: Host or Guest? (*Mark E Tuckerman & Stephen J Paddison*)

Orals: Thu AM, Thu PM

- 18g** Extreme Aqueous Environments of Geological Relevance (*Ariel A. Chialvo, Andrey Kalinichev & Thomas Driesner*)

Orals: Fri PM Posters: Thu PM

- 18h** Structure and Properties of Silicate Melts, Glasses and Fluids (*Xianyu XUE, Mark Ghiorso & Grant Henderson*)

Orals: Tue AM Posters: Tue PM

Theme 19: Application of X-ray and Neutron Methods to Geochemistry

Nancy Ross & Georges Calas

- 19a** *In situ* Observations of Fluid-Mineral Interfacial Structure, Dynamics and Reactivity (*Paul Fenter & Gernot Rother*)

Orals: Mon PM Posters: Mon PM

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- 19b** Dynamics of CO₂ and Methane in Rocks: Environmental and Energy Implications (*Yuri Melnichenko, Maria Mastalerz & C.O. Karacan*)
Orals: Wed AM Posters: Mon PM
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- 19c** New Applications of High-Pressure *in situ* X-Ray and Neutron Techniques (*Isabelle Daniel, Motohiko Murakami, Carmen Sanchez Valle & Wim van Westrenen*)
Orals: Mon AM Posters: Mon PM
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- 19d** Three-Dimensional Imaging of Earth and Environmental Processes (*Hassina Bilheux & Ed Perfect*)
Orals: Wed AM Posters: Mon PM
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- 19e** Molecular Structure and Dynamics in Biogeochemistry (*Alexander Johs, Liyuan Liang, John Ankner & Jeremy Smith*)
Orals: Mon AM Posters: Mon PM
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Theme 20: Analytical and Experimental Techniques

Vincent Salters & Jeroen Sonke

- 20a** Frontiers in Mass Independent Isotope Geochemistry (*Jeroen Sonke & Shuhei Ono*)
Orals: Wed AM Posters: Tue PM
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- 20b** Sharpening the Tools of Isotope Geochemistry: A Session in Honor of Ken Ludwig (*Paul Renne, John Aleinikoff, Mark Fanning, Warren Sharp & Roland Mundil*)
Orals: Mon AM, Mon PM
-
- 20c** Advances in Plasma Based Spectrometer in Geoanalysis (*Isaac Brenner*)
Orals: Tue AM, Tue PM Posters: Tue PM
-
- 20d** Constructing a 4D Thermal History of the Earth Through Isotopic Chronometry (*Geoffrey Batt & Fred Jourdan*)
Orals: Fri PM Posters: Thu PM
-
- 20e** Integrating Isotopic and Trace Element Characterizations of Mineral Chronometers in Geochemistry and Geochronology (*Joe Wooden, Paul Mueller, Calvin Miller, Martin Whitehouse & Daniela Rubatto*)
Orals: Thu PM Posters: Thu PM
-
- 20f** Analytical Techniques and Applications for Rhenium (Re) – Osmium (Os) Geochemistry to Sedimentary Systems (*Guangping Xu, Katsuhiko Suzuki, Aaron Zimmerman & Gang Yang*)
Orals: Thu AM Posters: Thu PM
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Themes & Sessions

- 20g** High Precision and High Resolution SIMS Analyses: New Applications to Earth and Planetary Science (*Noriko Kita, Mostafa Fayek & Lee Riciputi*)
Orals: Tue PM Posters: Tue PM
-
- 20h** *In situ* Chemical Detection in Extreme and Extra-Terrestrial Environments (*Jennifer Stern & Friso van Amerom*)
Orals: Tue PM Posters: Tue PM
-
- 20i** Addressing Reference Material Needs for Whole Rock, Micro-Analysis and Stable Isotope Analysis (*Paul Bedard, Michael Wiedenbeck & Tyler B Coplen*)
Orals: Tue AM Posters: Tue PM
-
- 20j** Trace Element Speciation and Reactivity: Advanced Analytical and Operational Methods (*David Point, David Amouroux, Holger Hintelmann & Olivier Clarisse*)
Orals: Fri AM Posters: Thu PM
-
- 20l** Molecular Characterization of Complex Organic Mixtures in the Earth, Environmental and Petroleum Sciences (*William Cooper & Thorsten Dittmar*)
Orals: Thu AM Posters: Thu PM
-
- 20m** Developments in Cyberinfrastructure in Petrology, Geochemistry and Geochronology (*Roger L Nielsen, Mark Giorso & Anthony Koppers*)
Posters: Tue PM
-
- 20n** Laser Ablation ICP-MS in Ore Deposits Studies (*Sarah-Jane Barnes, Alan Koenig & Marcel Guillong*)
Orals: Mon AM Posters: Mon PM
-

Theme 21: Further Geochemistry Sessions

Cong-Qiang Liu

- 21a** Urban Geochemistry (*W. Berry Lyons & Rolf Torre Ottesen*)
Orals: Fri AM Posters: Thu PM
-
- 21b** Teaching Mineralogy, Petrology and Geochemistry (*David W Mogk & Darrell J Henry*)
Orals: Mon PM Posters: Thu PM
-
- 21c** Geochemical Data Acquisition, Analysis, Modeling and Visualization for Geological/mineral Exploration (*Martiya Sadeghi & Emmanuel John Carranza*)
Orals: Thu AM Posters: Thu PM
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Themes & Sessions

- 21d** Nonlinear Dynamics of Geochemical Systems: Feedbacks, Stability, Complexity and Pattern Formation (*Yifeng Wang, Enrique Merino & Huifang Xu*)
Orals: Thu PM
-

Theme 22: General Geochemistry

- 22a** General Low-Temperature Geochemistry
Orals: Fri PM Posters: Mon PM
-
- 22b** General High-Temperature Geochemistry
Orals: Wed AM Posters: Mon PM
-
- 22c** General Biogeochemistry
Posters: Mon PM
-
- 22d** Other Geochemistry
Orals: Mon AM Posters: Mon PM
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