



## Themes & Sessions

### Theme 01: Cosmochemistry, Planet Formation

Meenakshi Wadhwa & Marc Chaussidon

- 01a** The Disc Epoch: Sources and Compositions of Early Solar System Materials (*Jérôme Aléon & Ko Hashizume*)

**Orals: Mon AM Posters: Mon PM**

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- 01b** From Gas and Dust to Planetesimals: Processes and Timescales (*Fred Ciesla & Ed Young*)

**Orals: Thu PM, Fri AM Posters: Thu PM**

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- 01c** From Planetesimals to Planets (*Ghyslaine Quitté & Frederic Moynier*)

**Orals: Mon PM Posters: Mon PM**

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- 01d** Mars and the Moon: New Discoveries from Sample Science to Recent Missions (*Anne Peslier, Tomas Magna & Carsten Münker*)

**Orals: Fri AM, Fri PM Posters: Thu PM**

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### Theme 02: Primitive Earth: From Core to Atmosphere

Stephen Mojzsis, James Kasting & Guillaume Caro

- 02a** Redox Evolution of the Early Mantle, Oceans and Atmosphere (*David Catling & Bernie Wood*)

**Orals: Fri AM, Fri PM Posters: Thu PM**

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- 02b** Geology, Age and Origin of the Oldest Terrestrial Rocks and Minerals (*Nicholas Arndt, Stephen Mojzsis & Janne Blichert-Toft*)

**Orals: Mon PM, Tue AM Posters: Mon PM**

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- 02c** The Faint Young Sun Revisited: The Message from Rocks and Climate Models (*James Kasting, Nicolas Dauphas & Nathan Sheldon*)

**Orals: Tue PM Posters: Tue PM**

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- 02d** Geochemical Evidence For, and Consequences of, Microbial Activity in the Archean Rock Record (*Kurt Konhauser, Yuichiro Ueno, Abigail Allwood & Sylvie Derenne*)

**Orals: Tue PM Posters: Tue PM**

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- 02e** Timing and Conditions of Core Formation in the Primitive Earth (*Caroline Fitoussi & Mathieu Touboul*)

**Orals: Wed AM Posters: Tue PM**

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- 02f** Primordial Differentiation and Destruction of Hadean Silicate Reservoirs (*Guillaume Caro & Vickie Bennett*)

**Orals: Thu AM Posters: Wed PM**

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## Themes & Sessions

- 02g** What was the Source of Earth's Volatiles? (*Sean Raymond & Bernard Marty*)  
**Orals: Wed PM Posters: Wed PM**
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- 02h** Taphonomy and Geochemistry: Experiment and Observation in Understanding the Fossil Record of Early Life (*Tanja Bosak, Michael Tice & Jochen Brocks*)  
**Orals: Thu PM Posters: Wed PM**
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- 02i** The Evolving Early Earth Hydrosphere as a Geodynamic Tracer and Facilitator for Life: Constraints from the Supracrustal Rock Record (*Vincent van Hinsberg & Emilie Thomassot*)  
**Orals: Mon AM Posters: Mon PM**
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- 02j** Aqueous Environments Captured by Clay Mineral Deposits on the Early Earth and on Mars (*Joseph Michalski & Javier Cuadros*)  
**Orals: Thu PM Posters: Wed PM**
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- 02k** Astrobiology and Extreme Terrestrial Environments (*Jan Jehlicka & Howell G M Edwards*)  
**Orals: Mon PM Posters: Mon PM**
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### Theme 03: Evolution and Dynamics of the Deep Earth

**James Badro & Mike Walter**

- 03a** Experimental Constraints on the Origin and Evolution of Earth's Early Mantle and Core (*James Badro & Mike Walter*)  
**Orals: Tue AM Posters: Mon PM**
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- 03b** Estimating the Deep Mantle Water Budget from Geochemistry, Geophysics, and Geodynamical Modelling (*Bruno Reynard*)  
**Orals: Thu AM Posters: Wed PM**
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- 03c** Mantle Redox and the Deep Carbon Cycle (*Yingwei Fei, Dan Frost & Bob Luth*)  
**Orals: Tue AM, Tue PM Posters: Tue PM**
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- 03d** Cratonic Mantle Processes: Insights from Diamonds and Xenoliths (*Maya Kopylova & Paolo Nimis*)  
**Orals: Wed AM, Wed PM Posters: Tue PM**
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- 03f** Physics and Chemistry of the Deep Earth (*Tetsuya Komabayashi & James Van Orman*)  
**Orals: Mon AM, Mon PM Posters: Mon PM**
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## Themes & Sessions

- 03g** Stable Isotope Fractionation at High Pressures and Temperatures (*Wim van Westrenen & Helen Williams*)  
**Orals: Mon AM Posters: Mon PM**
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### Theme 04: Mantle to Crust: Ocean Ridge and Intraplate Volcanism

**Janne Blichert-Toft & Jasper Konter**

- 04a** Chemical Geodynamics: 25 Years of Mantle Components (*Al Hofmann, Francis Albarède, Matthew Jackson & Thorsten Becker*)  
**Orals: Mon AM, Mon PM Posters: Mon PM**
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- 04b** New Insights into Mantle and Crustal Processes from High Temperature Stable Isotope Techniques (*Bruce Watson, Anat Shahar & Craig Lundstrom*)  
**Orals: Tue AM Posters: Mon PM**
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- 04c** Plumes, Mid-Ocean Ridges, and Plates: Examining their Dynamics and Interactions with Observations and Models (*Kaj Hoernle, Anthony Koppers, William Sager & Christoph Beier*)  
**Orals: Wed AM, Wed PM Posters: Tue PM**
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- 04d** Influence of Volatiles on Mantle and Magma Processes (*Rajdeep Dasgupta, Alison Shaw & Dan Frost*)  
**Orals: Thu AM, Thu PM Posters: Wed PM**
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- 04e** Mantle Compositional Variability: From Ocean Basins to Melt Inclusions (*John Maclennan, Leonid Danyushevsky & David Graham*)  
**Orals: Thu PM, Fri AM Posters: Thu PM**
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- 04f** Time Scales of Melt Generation, Extraction, and Transport from the Mantle to the Earth's Surface (*Fidel Costa, Aaron Pietruszka, Mary Reid & Elisabeth Widom*)  
**Orals: Wed AM Posters: Tue PM**
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- 04g** Merging Experiments, Models, and Geochemical Observations of Mantle Melting (*Paul Asimow, Claude Herzberg & Sebastien Pilet*)  
**Orals: Fri PM Posters: Thu PM**
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- 04h** Pb Isotopic Insights into Earth's Evolution: A Tribute to George R. Tilton (1923 – 2010) (*Julie Bryce, Sam Mukasa, Barry Hanan & Kaj Hoernle*)  
**Orals: Thu PM Posters: Wed PM**
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## Themes & Sessions

- 04i** Origin of Large Igneous Provinces: Linking Geochemistry, Geochronology, Geophysics, Geodynamics and Climate Modeling (*Alex Sobolev, Andrea Marzoli, Stephan Sobolev & Fred Jourdan*)

**Orals: Tue PM Posters: Tue PM**

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### Theme 05: Continental Crust Formation and Evolution

**Cin-Ty Lee, James Day & Oliver Jagoutz**

- 05a** The Origin of Planetary Crusts (*Audrey Bouvier & James Day*)

**Orals: Wed AM Posters: Tue PM**

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- 05b** Destruction and Recycling of Continental Crust (*Yongsheng Liu, Cin-Ty Lee & Shan Gao*)

**Orals: Tue PM Posters: Tue PM**

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- 05c** Continent Formation through Time (*Steve Parman, Peter Clift, Steven Shirey & Martin Van Kranendonk*)

**Orals: Thu AM, Thu PM Posters: Wed PM**

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- 05d** The Role of Island and Continental Arcs in Continent Formation (*Jaime Barnes, Esteban Gazel & Jade Star Lackey*)

**Orals: Mon AM Posters: Mon PM**

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- 05e** Petrologic, Geochemical and Tectonic Links between the Continental Crust and Lithospheric Mantle (*Oliver Jagoutz, Craig O'Neill, Peter Luffi & Josef Dufek*)

**Orals: Tue AM Posters: Tue PM**

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- 05f** Calibrating the Thermo-Mechanical Evolution of Continental Crust: Magmatism, Metamorphism, Deformation, and Erosion (*Ethan Baxter, Rebecca Flowers, Stacia Gordon & Gregory Dumond*)

**Orals: Wed AM, Wed PM Posters: Tue PM**

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- 05g** Duration, Tempo and Rates of Magmatic Processes in the Crust (*Urs Schaltegger & Othmar Müntener*)

**Orals: Mon PM Posters: Mon PM**

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- 05h** Kimberlite, Carbonatite, and Strongly Alkaline Magmatism: Source-Forming Processes and Relations to Basaltic Magmatism (*Sebastian Tappe, Dejan Prelevic & Graham Pearson*)

**Orals: Fri AM, Fri PM Posters: Thu PM**

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## Themes & Sessions

### Theme 06: Recycling: Subduction, The Mantle Wedge and Arc Volcanism

**Terry Plank & Simon Turner**

- 06a** Recycling Agents in Subduction Zones: Fluids and Melts (*Joerg Hermann, Susanne Skora & Weidong Sun*)  
**Orals: Tue AM, Tue PM, Wed AM Posters: Tue PM**
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- 06b** Arc Magmas from Slab to Eruption (*Olivier Bachmann, Lorella Francalanci, Philipp Ruprecht & Paul Wallace*)  
**Orals: Wed AM, Wed PM Posters: Tue PM**
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- 06c** Geochemical Tracing of Recycled Subducted Materials (*Julian Pearce & David Peate*)  
**Orals: Thu AM, Thu PM Posters: Wed PM**
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- 06d** The Geochemical and Geodynamic Implications of Melt and Fluid Flow in the Mantle Wedge (*Taras Gerya & Marco Scambellurixx*)  
**Orals: Fri PM Posters: Thu PM**
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- 06e** Deep Subduction of Crustal Rocks into the Mantle: Observations, Experiments, Models (*Larissa Dobrzhinetskaya, Shah Wali Faryad, Taras Gerya & Alexei Perchuk*)  
**Orals: Fri AM Posters: Thu PM**
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### Theme 07: Evolution of Earth's environment

**Simon Poulton & Derek Vance**

- 07a** Ocean Acidification: Past, Present and Future (*Daniela Schmidt & Appy Sluijs*)  
**Orals: Tue PM Posters: Tue PM**
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- 07b** Trace Elements at the Intersection of Biological and Geochemical Evolution (*Aubrey Zerkle & Stefan Lalonde*)  
**Orals: Tue AM Posters: Mon PM**
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- 07c** Coevolution of Life and the Environment in the Late Neoproterozoic to Early Phanerozoic (*David Fike, Matthew Hurtgen & Gordon Love*)  
**Orals: Mon AM, Mon PM Posters: Mon PM**
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- 07d** Trace Metal Stable Isotopes and Organic Biomarkers: Evidence for Early Life on Earth and Beyond (*Vyllinniskii Cameron, Corey Archer & Jennifer Eigenbrode*)  
**Orals: Tue AM Posters: Mon PM**
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## Themes & Sessions

- 07e** Mesozoic and Early Cenozoic Greenhouse Episodes: Insights into the Anthropocene (*Stuart Robison, Tom Dunkley Jones & Jim Zachos*)  
**Orals: Mon PM Posters: Mon PM**
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- 07f** Modern Analogues for Precambrian Marine Ecosystems (*Sean Crowe & Noah Planavsky*)  
**Orals: Wed PM Posters: Wed PM**
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- 07g** Enhancing Mineral Weathering and Ocean Alkalinity to Consume CO<sub>2</sub> and Moderate Ocean Acidification (*Tim Kruger, Dieter Wolf-Gladrow, Greg Rau & Josh West*)  
**Orals: Wed AM Posters: Tue PM**
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- 07h** Oceanic Anoxia and Ocean Dead Zones, Past, Present and Future (*Martin Kennedy, Thomas Wagner & Anthony Cohen*)  
**Orals: Wed AM Posters: Tue PM**
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### Theme 08: Interfaces and Interfacial Processes from the Nano- to Continental Scale

**Ruben Kretzschmar & Laurent Charlet**

- 08a** Natural, Synthetic, and Incidental Nanoparticles, their Surface Characteristics, and their Interactions with Earth and Life (*Mike Hochella, Laurent Charlet, Frank von der Kammer & Jamie Lead*)  
**Orals: Wed AM, Wed PM Posters: Tue PM**
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- 08b** Chemical and Microbial Electron Transfer Processes at Mineral Surfaces (*Kevin Rosso & Andreas Kappler*)  
**Orals: Wed PM, Thu AM Posters: Wed PM**
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- 08c** Biogeochemical Processes within Floodplain and Deltaic Sediments (*Scott Fendorf, Shawn Benner & Ruben Kretzschmar*)  
**Orals: Thu AM Posters: Wed PM**
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- 08d** Biotic/abiotic Nucleation and Early Life (*Karim Benzerara, Andreas Kappler & Kurt Konhauser*)  
**Orals: Tue AM Posters: Mon PM**
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- 08e** Current Challenges in Predicting Trace Metals Mobility in the Environment (*Thorsten Schäfer, Christophe Tournassat & Thorsten Stumpf*)  
**Orals: Fri PM Posters: Thu PM**
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- 08f** Oceanic and Terrestrial Natural Organic Matter Transformation (*Alan Stone & Neil Blough*)  
**Orals: Tue PM Posters: Tue PM**
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## Themes & Sessions

**08g** Gas Storage and Transfer in Geological Media (*Eric Pili & Jim DeYoreo*)

**Orals: Tue AM Posters: Mon PM**

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**08h** Geochemical Processes at Mineral-Water Interfaces: Insight from Macroscopic, Spectroscopic, and Computational Methods (*Jeffrey Catalano, Udo Becker & Jean-François Boily*)

**Orals: Mon AM, Mon PM, Tue AM, Tue PM, Wed AM Posters: Tue PM**

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**08i** Mineral Nucleation: From the Atomic to the Planetary Scale (*Juan Diego Rodriguez-Blanco, Teresa Roncal-Herrero & Karina Krarup Sand*)

**Orals: Wed PM Posters: Wed PM**

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**08j** Nanoparticles, Interfacial Processes and Nuclear Waste Management (*Andrey Kalinichev, Stepan N Kalmykov & Melissa Denecke*)

**Orals: Thu PM, Fri AM Posters: Thu PM**

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**08k** Water Structure and Hydrogen Bonding on Mineral and Nanoparticle Surfaces (*Glenn Waychunas & Alejandro Fernandez-Martinez*)

**Orals: Thu PM Posters: Wed PM**

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### Theme 09: Geochemistry of Volcanic Systems and Natural Hazards

**David Pyle & Mark Reagan**

**09a** Magmatic Volatiles, Climate, and Earth Evolution (*David Pyle & Bernard Marty*)

**Orals: Fri AM Posters: Thu PM**

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**09b** New Insights into Geochemical Monitoring of Volcanic Activity (*Sandro Aiuppa & Burton Mike*)

**Orals: Fri PM Posters: Thu PM**

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**09c** Magmatic Volatiles: From Natural and Experimental Systems to Thermodynamics and Numerical Modeling. Their Influence on Magma Properties (*Nicole Metrich & Roman Botcharnikov*)

**Orals: Fri AM Posters: Thu PM**

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**09d** Petrological and Geochemical Indicators of Magmatic Processes and Eruption Trigger Mechanisms (*Olivier Bachmann, Fidel Costa & Christian Huber*)

**Orals: Tue AM Posters: Mon PM**

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## Themes & Sessions

- 09e** Timescales of Magma Evolution, Degassing, and Ascent through the Crust (*Heather Handley & Mark Reagan*)  
**Orals: Fri PM Posters: Thu PM**
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- 09f** Linking the Plutonic and Volcanic Records: Textural and Geochemical Fingerprinting of Magma Chamber Processes (*Vojtech Janousek, Valentin Troll & Abigail Barker*)  
**Orals: Thu PM Posters: Wed PM**
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- 09g** Elements of Ophiolites (*Yildirim Dilek & Harald Furnes*)  
**Orals: Wed PM Posters: Wed PM**
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- 09h** Volcanic Glass Heterogeneity: Primary and Secondary Causes, and Uses (*Kim Berlo, Victoria Smith & Olivier Reubi*)  
**Orals: Wed PM Posters: Wed PM**
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### Theme 10: Earth Resources: Energy

**Steve Larter & Chris Ballentine**

- 10a** Geochemistry, Biogeochemistry, Mineralogy and Physics of Shale Gas, Coal Gas and Tight Gas Systems (*Robert Burruss*)  
**Orals: Mon PM Posters: Mon PM**
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- 10b** Biogenic Gas and Biogeochemical Routes to Cleaner Energy (*Bill Mahaffey & Dariusz Strapoc*)  
**Orals: Tue AM Posters: Mon PM**
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- 10c** Hydrogen, Electrons, Biofuels and the Biogeochemistry of Sediments (*Ian Head & Lars Peter Nielsen*)  
**Orals: Tue PM Posters: Tue PM**
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- 10d** Geochemistry in the Post Petroleomics World – Advances in MS (*Clifford Walters & Patrick Hatcher*)  
**Orals: Tue PM Posters: Tue PM**
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- 10e** Towards the Geochemical Tricorder – Advances in Geochemical Microtechnology, Sampling and Sensing Systems: (*Steve Larter*)  
**Orals: Wed PM Posters: Wed PM**
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- 10f** Carbon Sequestration Analogues (*Chris Ballentine & Dave Cole*)  
**Orals: Mon AM, Mon PM Posters: Mon PM**
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- 10g** Organic and Inorganic Fluid-Fluid-Rock Interactions in CO<sub>2</sub> Storage Systems (*Axel Liebscher, Andrea Vieth-Hillebrand & Ann-Kathrin Scherf*)  
**Orals: Thu PM, Fri AM Posters: Thu PM**
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## Themes & Sessions

**10h** Geochemical Frontiers of the Rock/Water/Hydrocarbon System (*Bruce Yardley & Christian Ostertag-Henning*)  
**Orals: Wed AM, Wed PM Posters: Wed PM**

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**10i** Geochemistry in Geothermal Energy: Field Observations, Experiments and Modeling (*Simona Regenspurg & Ferdinand Hingerl*)  
**Orals: Thu AM Posters: Wed PM**

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**10j** Giant Oil Spills and Environmental Impact: Past Lessons and Future Predictions (*Bill Mahaffey & Terry Hazen*)  
**Orals: Thu PM Posters: Wed PM**

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### Theme 11: Earth's Resources: Ores - under the patronage of SGA

**Jan Pasava & Keiko Hattori**

**11a** Black Shales and Ocean-Atmosphere Evolution: Implications for Metal Accumulation – Sponsored by SGA (*Bernd Lehmann & Jan Pasava*)  
**Orals: Tue AM Posters: Mon PM**

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**11b** Ore Deposits and the Role of the Lithospheric Mantle – Sponsored by SGA (*Wolfgang Dereck Maier, Sisir K. Mondal, Thomas Oberthür & Marco Fiorentini*)  
**Orals: Thu AM, Thu PM, Fri AM Posters: Thu PM**

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**11c** Metal Solubility in Geofluids and Ore-Forming Silicate Melts (*Jacob Hanley, Zoltan Zajacz, A.E. Williams-Jones & James Webster*)  
**Orals: Tue PM, Wed AM, Wed PM Posters: Tue PM**

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**11d** Dating of Mineral Deposits and Fluid Flow in the Lithosphere (*Robert Creaser & Keiko Hattori*)  
**Orals: Mon AM, Mon PM Posters: Mon PM**

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**11e** Biogeochemistry and Geomicrobiology of Ore Deposits – Sponsored by SGA (*Gordon Southam*)  
**Orals: Tue AM Posters: Mon PM**

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**11f** Natural and Synthetic Platinum-Group Minerals (PGM): Tracers of Processes at High and Low Temperatures – Sponsored by IMA COM and SGA (*Oskar Thalhammer, Federica Zaccarini & Juraj Farkaš*)  
**Orals: Fri PM Posters: Thu PM**

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**11g** The Rare Earth Elements: Their Deposits, Geochemistry, and Environmental Impact (*Michael Bau, Ulrich Schwarz-Schampera & James R. Hein*)  
**Orals: Fri AM, Fri PM Posters: Thu PM**

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## Themes & Sessions

### Theme 12: Climate Change

**Edouard Bard & Barbara Stenni**

- 12a** Links between CO<sub>2</sub> and Climate: Carbon Cycle Feedbacks over Time (*Ralph Keeling & Hagit Affek*)  
**Orals: Mon AM Posters: Mon PM**
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- 12b** Patterns of Past Changes in Major Precipitation Systems (*Dominik Fleitmann & Julia Cole*)  
**Orals: Mon PM Posters: Mon PM**
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- 12c** Chronologies and Rates of Climate Change (*Edouard Bard & Dominik Fleitmann*)  
**Orals: Fri PM Posters: Thu PM**
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- 12d** Novel Molecular and Isotopic Tracers of Terrigenous Supply to Marine Sediments (*Guillemette Menot, Germain Bayon & Johan Weijers*)  
**Orals: Thu PM Posters: Wed PM**
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- 12e** Biomineralization of Marine Organisms: Toward a Better Understanding of Proxy Records (*Claire Rollion-Bard, Dominique Blamart & Jess Adkins*)  
**Orals: Thu AM Posters: Wed PM**
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- 12f** Frontiers in Cosmogenic Dating of Glacial Landscapes: Last Analytical Developments, New Production Rates Calibration, Sampling Strategies and Paleoclimatic Significance of New Glacial Chronologies (*Pierre-Henri Blard, Didier Bourles & Finkel Bob*)  
**Orals: Thu AM, Thu PM Posters: Wed PM**
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- 12g** Modeling of Geochemical Proxies (*Xavier Giraud, Olivier Marchal & Michael Evans*)  
**Orals: Wed PM Posters: Wed PM**
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- 12h** Geochemistry of Ice Sheets and their Basal Environments (*Jeff Severinghaus & Barbara Stenni*)  
**Orals: Fri AM Posters: Thu PM**
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- 12i** Marginal Basin Sediments: Archives for High-Resolution Paleoclimate Records Including Land-Ocean Interactions (*Gert De Lange, F.M. Martinez-Ruiz, Stefano Bernasconi & G Versteegh*)  
**Orals: Wed PM Posters: Wed PM**
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## Themes & Sessions

### Theme 13: Sources, Sinks and Impact of Atmospheric Aerosols

#### Gordon McFiggans & Surabi Menon

- 13a** Organics in the Mix: Multicomponent Aerosol Processes (*Gordon McFiggans & Douglas Worsnop*)  
**Orals: Tue AM, Tue PM Posters: Tue PM**
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- 13b** Aerosols, Clouds and Precipitation (*Patrick Chuang & Johannes Quaas*)  
**Orals: Thu PM Posters: Wed PM**
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- 13c** Air Quality and Climate: Bridging the Scales (*Mian Chin & Lorraine Remer*)  
**Orals: Fri AM, Fri PM Posters: Thu PM**
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- 13d** Aerosols, Energy Sources and Climate (*Surabi Menon & Jon Egill Kristjansson*)  
**Orals: Tue PM, Wed AM Posters: Tue PM**
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- 13e** Land-Atmosphere Interactions: The Role of Aerosols (*Almut Arneth, Annika Ekman & Janne Rinne*)  
**Orals: Fri AM Posters: Thu PM**
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- 13f** Marine Aerosol Formation and Transformation (*Colin O'Dowd & Thorsten Hoffmann*)  
**Orals: Wed AM, Wed PM Posters: Tue PM**
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- 13g** Atmospheric Dust (*Reto Gieré & Bernard Grobety*)  
**Orals: Wed PM, Thu AM Posters: Wed PM**
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### Theme 14: Weathering, Climate, Tectonics and Surface Processes

#### C. France-Lanord & Lou Derry

- 14a** Critical Zone Processes at Multiple Scales (*Heather Buss & Jérôme Gaillardet*)  
**Orals: Fri AM Posters: Thu PM**
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- 14b** The Geochemistry of Landscape Evolution: Linkages between Regolith Formation, Erosion, and Chemical Fluxes (*George Hilley & Christian Mavris*)  
**Orals: Mon PM Posters: Mon PM**
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- 14c** Proxies for Chemical Weathering – Studies of Active Processes and Interpretation of Ancient Records (*Friedhelm von Blanckenburg, Ed Tipper, Alexander Piotrowski & Julien Bouchez*)  
**Orals: Tue AM, Tue PM, Wed AM Posters: Tue PM**
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## Themes & Sessions

- 14d** Links between Surface Processes and the Evolution of Earth's Biogeochemical Cycles (*Martin Kennedy & Sasha Turchyn*)  
**Orals: Wed AM Posters: Tue PM**
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- 14e** Silicate Weathering and Organic Carbon Sequestration during Continental Erosion: Processes Controlling Dissolved and Particulate Fluxes Exported by Rivers to the Ocean (*Valier Galy & Herdis Schopka*)  
**Orals: Thu AM Posters: Wed PM**
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- 14f** Quantifying Erosion and Weathering Rates and Critical Zone Processes Across Spatial and Temporal Scales (*Francois Chabaux, Anthony Dosseto, Arjun Heimsath & Rolf Aalto*)  
**Orals: Mon AM, Mon PM Posters: Mon PM**
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- 14g** Experimental Constraints on Chemical Erosion Rates and Mechanisms Using New and/or non Traditional Isotope Tools (*Nathalie Vigier & Eric Oelkers*)  
**Orals: Thu PM Posters: Wed PM**
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## Theme 15: Oceans Atmosphere: Past and Present

**Ed Boyle & Jess Adkins**

- 15a** The GEOTRACES Program (*Ed Boyle*)  
**Orals: Mon AM, Mon PM Posters: Mon PM**
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- 15b** Deep Ocean Circulation in the Past (*Jeanne Gherardi Scao & Bob Anderson*)  
**Orals: Tue PM Posters: Tue PM**
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- 15d** Geochemical and Microbiological Research in Both Shallow and Deep-Sea Hydrothermal Environments (*Roy Price & Paul Craddock*)  
**Orals: Wed AM Posters: Tue PM**
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- 15e** Balancing the Radiocarbon Budget (*Jess Adkins*)  
**Orals: Wed AM, Wed PM Posters: Tue PM**
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- 15g** Connectivity of Ocean Circulation and Chemistry at Glacial-Interglacial Transitions (*Katharine Hendry & Marcus Gutjahr*)  
**Orals: Mon PM, Tue AM Posters: Mon PM**
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- 15h** Submarine Hydrothermal Processes and Alteration of the Oceanic Lithosphere (*Frieder Klein, Marguerite Godard, Gretchen L. Früh-Green & Niels Jöns*)  
**Orals: Wed PM, Thu AM Posters: Wed PM**
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## Themes & Sessions

- 15i** Metal Stable Isotope Signals in Earth's Oceans and Seas  
(*Thomas Bullen & Matthew Fantle*)

**Orals: Fri AM, Fri PM Posters: Thu PM**

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### Theme 16: Geochemical Impacts of Human Activity

**Steve Banwart & Dan Giammar**

- 16a** Geochemical Processes in Mining Environments –  
Sponsored by MIBRAG (*Kate Campbell, Colleen Hansel & Kai-Uwe Ulrich*)

**Orals: Wed AM, Wed PM, Thu AM, Thu PM Posters: Wed PM**

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- 16b** Understanding the Fate and Transformations of Metal and Radionuclide Contaminants in Unsaturated and Saturated Subsurface Environments (*Scott Brooks, Dawn Wellman, Henning Prommer & Ann Miracle*)

**Orals: Thu PM, Fri AM, Fri PM Posters: Thu PM**

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- 16c** Soil Carbon Dynamics in Managed Environments (*Nikolaos Nikolaidis & Donald Sparks*)

**Orals: Mon PM, Tue AM Posters: Mon PM**

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- 16d** Assessing Micropollutant Transformation Dynamics in the Earth's Critical Zone (*Thomas Hofstetter, William Arnold & Heileen Hsu-Kim*)

**Orals: Tue AM Posters: Mon PM**

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- 16e** Engineered Nanomaterials in the Environment: Strategies to Understand their Behaviour and Impact in Environmental and Biological Media (*Maria Romero-Gonzalez, Frank von der Kammer, Greg Lowry & Peter Vikesland*)

**Orals: Tue PM, Wed AM Posters: Tue PM**

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- 16f** Biogeochemical Processes in Management and Forensics of Legacy Radioactive Materials (*Katherine Morris, Maxim Boyanov & Albert J Fahey*)

**Orals: Mon AM, Mon PM Posters: Mon PM**

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- 16h** Environmental Implications of Waste Recycling: Challenges in Preserving Soil and Water Resources (*Emmanuel Doelsch & Armand Masion*)

**Orals: Wed AM Posters: Tue PM**

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## Themes & Sessions

### Theme 17: Biogeochemistry: From Microbes to Macro and Cycles

**Martin Novak, Susan Trumbore & Jon Chorover**

- 17a** Biogeochemical Cycling in Watersheds (*Martin Novak & Maria Dittrich*)  
**Orals: Fri AM Posters: Thu PM**
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- 17b** Where Minerals Meet Life: Organic Matter Turnover in the Critical Zone (*Kirsten Kuesel, Karsten Kalbitz, Katerina Dontsova & Zsuzsanna Balogh-Brunstad*)  
**Orals: Tue PM Posters: Tue PM**
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- 17c** Methane Cycling in Marine and Terrestrial Environments (*Samantha Joye, Alina Stadnitskaia, Helge Niemann & Tomas Feseker*)  
**Orals: Wed AM Posters: Tue PM**
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- 17d** Biogeochemistry of Limiting Nutrients (*Stephan Kraemer & Peter Croot*)  
**Orals: Wed PM Posters: Wed PM**
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- 17e** Nitrogen Isotopes and Nitrogen Cycling in Terrestrial and Aquatic Systems (*Carsten Schubert & Moritz Lehmann*)  
**Orals: Mon AM, Mon PM Posters: Mon PM**
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- 17f** Microbial Catalysis of Mineral Dissolution and Precipitation (*Liane Benning, Renata van der Weijden, Steeve Bonneville & Carsten Mueller*)  
**Orals: Mon PM, Tue AM Posters: Mon PM**
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- 17g** Dynamics, Mobility and Bioavailability of Trace Elements in Contaminated Environments (*Michael Komarek, Melanie Davranche, Carla Koretsky & Martin Mihaljevic*)  
**Orals: Thu PM, Fri AM Posters: Thu PM**
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- 17h** Biogeochemical Cycling of Iron (*Kristina Straub, Thilo Behrends, Ed Burton, Stefan Peiffer & Cara Santelli*)  
**Orals: Mon AM, Mon PM Posters: Mon PM**
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- 17i** Linking “Omics” to Biogeochemical Fluxes (*Peter Girgius, Jutta Niggemann & Thorsten Dittmar*)  
**Orals: Fri PM Posters: Thu PM**
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- 17j** Biogeochemical Processes in Redox-Dominated Environments: From Cold Seeps to Soils (*Gert De Lange, Céline Pallud, Christian Hensen & Anniët Laverman*)  
**Orals: Fri AM, Fri PM Posters: Thu PM**
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## Themes & Sessions

- 17k** Significance of Iodine in Biogeochemistry and the Environmental Sciences: Special Session Commemorating the Bicentennial of the Discovery of Iodine (*Yasuyuki Muramatsu & Glen Snyder*)  
**Orals: Thu AM, Thu PM Posters: Wed PM**
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- 17l** Biomedical Applications of Natural Stable Isotope Variations (*Vincent Balter & Anton Eisenhauer*)  
**Orals: Thu PM Posters: Wed PM**
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- 17m** Microscale (Bio)chemical and Microbiological Characterization of Soils and Geosorbents (*Philippe Baveye, Thilo Eickhorst, Astrid Jacobson & Clare Wilson*)  
Posters: Wed PM
- 17n** Trace Metal Records in Marine Systems: Processes and Proxies (*Christian März, Jennifer McKay & Philipp Böning*)  
**Orals: Thu PM Posters: Wed PM**
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### Theme 18: Frontiers in Analytical Techniques

**Gerd Gleixner, Tim Elliott & Ed Young**

- 18a** Advances in Resolution and Accuracy of *in situ* Determination of Isotope Ratios (*Anders Meibom & Jan Kosler*)  
**Orals: Mon AM, Mon PM Posters: Mon PM**
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- 18b** New Isotopic Systems at Unprecedented Precision (*Magali Bonifacie & Joel Baker*)  
**Orals: Tue PM Posters: Tue PM**
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- 18c** Accurate and Consistent Time-Keeping in Geological History (*Dan Condon, Fin Stuart & Claudine Stirling*)  
**Orals: Thu AM Posters: Wed PM**
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- 18d** Advanced Microanalytical, Spectroscopic and (Spectro-) microscopic Surface Methods: STXM, NEXAFS, AFM, NANOSIMS,.. (*Kai Totsche & Karim Benzerara*)  
**Orals: Mon PM, Tue AM Posters: Mon PM**
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- 18e** Novel Molecular Methods to Understand Past and Present Biogeochemical Processes (*Dirk Sachse & Valerie Schwab-Lavric*)  
**Orals: Wed AM, Wed PM Posters: Tue PM**
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- 18g** Non-Traditional Isotopes in Non-Traditional Matrices (*Jean Carignan, Sander van den Boorn & Christophe Cloquet*)  
**Orals: Wed PM Posters: Wed PM**
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## Themes & Sessions

- 18h** Recent Advances in the Application of Calorimetry and Thermal Analysis in the Biogeosciences (*Alain Plante & Nieves Barros*)

**Orals: Thu PM Posters: Wed PM**

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### Theme 19: Frontiers in Computational Geochemistry

**Lars Stixrude & James Rustad**

- 19a** Radioactivity in the Environment: Damage, Solution, and Relativistic Effects (*David Dixon & Martin Dove*)

**Orals: Mon PM Posters: Mon PM**

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- 19b** Large and Complex Atomistic Systems: Physics, Algorithms, and Hardware (*Adri van Duin & Paolo Raiteri*)

**Orals: Mon PM Posters: Mon PM**

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- 19c** Modeling Transition Metal Compounds: Oxides, Sulfides, and Interfaces (*Rossitza Pentcheva, Ronald Cohen & Nora de Leeuw*)

**Orals: Tue AM Posters: Tue PM**

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- 19d** Dynamics of Earth Materials: From Isotope Fractionation to Spectroscopy (*Razvan Caracas & David Dixon*)

**Orals: Tue AM Posters: Mon PM**

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- 19e** Simulation of Geofluids from Melts to Aqueous Solutions (*Lars Stixrude & Ariel Chialvo*)

**Orals: Fri AM Posters: Thu PM**

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- 19f** Bridging the Gap between Atomic, Pore, and Continuum Scales (*Virginie Marry & Carl Steefel*)

**Orals: Mon AM Posters: Mon PM**

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- 19g** Reactions and Catalysis: Mineral-Water Interaction, CO<sub>2</sub> Sequestration, Electron Transfer (*James Rustad, Nora de Leeuw & Rossitza Pentcheva*)

**Orals: Thu PM Posters: Wed PM**

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- 19h** High Pressure Behavior from Impacts to Interiors (*Nico de Koker & Kanani Lee*)

**Orals: Fri PM Posters: Thu PM**

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- 19i** New Developments For The Analysis of Core-Level Spectroscopies (*Paul Bagus & Eugene Ilton*)

**Orals: Fri PM Posters: Thu PM**

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## Themes & Sessions

### Theme 20: Frontiers in Mineralogy and Mineral Physics

**Falko Langenhorst & Catherine McCammon**

- 20a** Unraveling P-T-t Paths: Pseudosections Versus Classical Phase Petrology (*Sönke Brandt & Niels Jöns*)  
**Orals: Thu PM Posters: Wed PM**
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- 20b** Magnetic Properties of Chemical Interfaces and Nano-Crystals in Natural Systems (*Suzanne McEnroe & Ann Hirt*)  
**Orals: Wed PM Posters: Wed PM**
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- 20c** Interplay between Plastic Rock Deformation and Mineral Reactions (*Rainer Abart, Bjorn Jamtveit & John Wheeler*)  
**Orals: Tue AM Posters: Mon PM**
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- 20d** Advances in Experimental and Computational Approaches to Mineral-Fluid Interactions (*David Dolejs & Juraj Majzlan*)  
**Orals: Wed PM Posters: Wed PM**
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- 20e** Diffusion Controlled Processes: Nature, Experiment and Theory (*Ralf Dohmen & Jiba Ganguly*)  
**Orals: Tue PM Posters: Tue PM**
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- 20f** Melts and Glasses: From Deep Earth Interiors over Environmental Applications to Volcanological and Geophysical Challenges (*Roberto Moretti & Daniel Neuville*)  
**Orals: Fri PM Posters: Thu PM**
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- 20g** Applying Synchrotron Science to Geosciences (*Max Wilke & Hanns-Peter Liermann*)  
**Orals: Wed AM Posters: Tue PM**
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- 20h** Abundance and Distribution of Critical High-Tech Metals in Ore Minerals (*F. Michael Meyer & Jens Gutzmer*)  
**Orals: Wed AM Posters: Tue PM**
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- 20i** Advanced Study of the Physical Properties of the Mantle Materials, and Applications to the Earth's Structure, Composition and Dynamics (*Tomoo Katsura & Stanislav Sinogeikin*)  
**Orals: Thu AM Posters: Wed PM**
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- 20j** Structure, Elasticity and Thermodynamics of Minerals (*Michael A. Carpenter, Tiziana Boffa Ballaran & Alan Woodland*)  
**Orals: Fri AM, Fri PM Posters: Thu PM**
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- 20k** Petrology and Geochemistry of Rutile (*Thomas Zack, Daniel F. Stockli & Alicia Cruz-Uribe*)  
**Orals: Thu AM, Thu PM Posters: Thu PM**
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## Themes & Sessions

### Theme 21: Hydrogeochemistry and Global Water Sustainability

**Chen Zhu & Rolf Kipfer**

- 21a** Global Water Sustainability (*Chen Zhu*)  
**Orals: Mon AM, Mon PM Posters: Mon PM**
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- 21c** Application of Noble Gases and Naturally Occurring Radioactive Isotopes in Waters and the Environment (*Rolf Kipfer & Michael Schubert*)  
**Orals: Thu AM Posters: Thu PM**
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- 21d** Biogeochemistry of Arsenic and Antimony (*Karen Johannesson, Annette Johnson & Saugata Datta*)  
**Orals: Tue PM Posters: Tue PM**
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- 21e** Fluid and Solute Fluxes Across the Land, River, Lake and Ocean Interfaces (*Henrieta Dulaiova, Thomas Riedel, Natasha Dimova & Hannelore Waska*)  
**Orals: Mon PM Posters: Mon PM**
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- 21f** Fluid Flow in the Earth's Crust (*Alasdair Skelton, Andrew Putnis & Jay Ague*)  
**Orals: Wed AM, Wed PM Posters: Tue PM**
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### Theme 22: General Sessions

- 22a** General Low-Temperature Geochemistry (*Leona Zemanova*)  
**Orals: Fri PM Posters: Thu PM**
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- 22b** General High-Temperature Geochemistry (*Evelyn Füri & Dominique Tobler*)  
**Orals: Thu AM Posters: Wed PM**
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- 22c** General Biogeochemistry (*Juraj Farkas*)  
**Orals: Thu PM Posters: Wed PM**
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- 22d** Isotope Archaeometry (*Ernst Pernicka, Thilo Rehren & Bernd Lehmann*)  
**Orals: Fri PM Posters: Thu PM**
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### Theme 23: Special Sessions

- 23a** Fukushima Review (*Mitsuru Ebihara, Bernard Bourdon & Bernard Marty*)  
**Orals: Tue AM, Tue PM**
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