Oral Presentations

Friday August 19th 2011

Summary & Highlights

08:30	**Plenary** *Floor 2 / Congress Hall* Victoria Orphan California Institute of Technology, Gast Lecturer *'Microbial Partnerships and Methane-Oxidation in the Deep Sea'*
09:10	**Closing Remarks**
09:25	
09:30	**Oral Sessions**
12:30	**Lunch** *Floor 3 / Forum Hall Foyer (Boxed lunches)* *Floor 1 / Restaurant Zoom (Buffet lunches)*
14:00	**Oral Sessions**
17:00	

Oral Presentations Overview — Fri — AM

	Chamber Hall	Club A	Club B/C	Club D	Club E	Club H	Conference Hall	Forum Hall	Meeting Hall I
	10g	02a	06e	01b / 01d	04e	05h	09c / 09a	17g	16b
09:30	Wolff-Boenisch	Trail	Perchuk	Nagahara	Thirlwall	Chalapathi Rao.	Mandeville	Koretsky	Liu
09:45	Heeschen	Lee	Kawai	Burkhardt	Manning	Janney		Desaunay	
10:00	Rempel	Foley	Spengler	Krot	Dosso	Tappe	Gaetani	Braungardt	Giammar
10:15	Berryman	Gaillard		Schauble	Barker	Kaneoka	Metrich	Torres	Druhan
10:30	Blume	Farquhar	Dobrzhinetskaya	Doyle	Burns	Sarkar	Yoshimura	Klaminder	Christensen
10:45	Mayer	Philippot	Kotková	Berger	Sobolev	Conceição	Moretti	Ettler	Spycher
11:00		Strauss	Jacobsen	Hamilton	Laubier	Kamenetsky	Burgisser	Ikehata	Varadharajan
11:15	Myrttinen	Ono	Burov	Udry	Warren	Weiss	Koga	Friedrich	Qin
11:30	Johnson	Danielache	Faryad	Jones	Borghini	Halama	Dingwell	Komarek	Corkhill
11:45	Jun	Viehmann	Gao	Gussone	O'Neill	McMahon	Cousineau	Brinza	Clark
12:00	Gautier	Lepland	Sizova	Sharp	Regelous	Millonig	Nemeth	Hund	Wellman
12:15	Scherf	Kurzweil	Purchase		Rubin	Buikin	Alfredsson	Mihaljevic	

	Meeting Hall IV	Meeting Hall V	North Hall	Panorama Hall	Small Hall	Small Theatre	South Hall	Terrace 1	Terrace 2
	08j	17a / 17j	13e / 13c	15i	19e	20j	11b / 11g	12h	14a
09:30	Nitsche	van der Grift	Heald	Harlavan	de Koker	Angel	Arai	Severinghaus	Rasmussen
09:45	Kirsch	Palmer	Bonn	Stevenson					
10:00	Romanchuk	Perdrial	Shaw	Eisenhauer	Kalinichev		Gonzalez-Jimenez		Dere
10:15	Jung	Zhu	Kiendler-Scharr		Haigis	Mihailova	Colakoglu	Barbante	Lauerwald
10:30	Banerjee	Farkaš		Galer	Bourg		Elghorfi		Gislason
10:45	Marsac	Worsham	Hoose	Vollstaedt	Karki	Boffa Ballaran	Ennaciri	Petit	Riotte
11:00	Handley-Sidhu	Novak	Karl	Liebetrau	McIntosh	Watenphul	Ohnuki	Jouzel	Opfergelt
11:15	Krivovichev	Dong	Stubbins	Gault-Ringold	Nezbeda	Hovis		Jiang	West
11:30	Othmane	Hädrich	Dentener	Ho	Moucka	Bobrov	Pédrot	Baroni	Sullivan
11:45	Rivard	Klotzbücher		Horner	Sherman	Zhang	Huh	Han	Kram
12:00	Roesch	Cerli	Longo	Lambelet	Vuilleumier	Redfern	Kulaksiz	Stenni	Aksoy
12:15	Kulik	Kausch	Colarco	Stirling	Lacks	Carpenter	Bau	Bhatia	Yoo

01b: From Gas and Dust to Planetesimals: Processes and Timescales

Session chaired by Fred Ciesla & Ed Young

09:30 Kinetics of Condensation and Cosmochemical Fractionation of the Planet Forming Materials in the Early Solar Nebula
Nagahara H & Ozawa K

09:45 Nucleosynthetic Mo and W Isotope Anomalies in Murchison Leachates
Burkhardt C, Kleine T, Dauphas N, Oberli F & Wieler R

10:00 O-Isotope Compositions of Ferroan Olivine in Ngawi (LL3-6) Breccia
Krot A, Nagashima K & Petaev M

10:15 Modeling Isotopic Signatures of Nebular Chlorine Condensation
Schauble E & Sharp Z

10:30 The Oxidation State of Ti in Synthetic and Meteoritic Hibonite
Doyle P, Berry A, Schofield P, Mosselmans F, Smith A, Scholl A & Young T

10:45 Hydrothermal Synthesis of Cubanite Under Conditions Relevant to the CI-Chondrite Parent Body
Berger E, Lauretta D & Keller L

Session 01d follows this session in this room. For details see page 399.

01d: Mars and the Moon: New Discoveries from Sample Science to Recent Missions

Session chaired by Anne Peslier, Tomas Magna & Carsten Münker

11:00 Martian Surface Geochemistry from MGS TES: Evidence of Global-Scale Dissolution of Olivine from Basalts
Hamilton VE & Rogers AD

11:15 Newly Discovered MIL 090030, MIL 090032, and MIL 090136 Nakhlites: Paired with MIL 03346?
Udry A & McSween HY

11:30 Martian Magmatic Volatiles Recorded in Olivine-Bearing Melt Inclusions and Matrix of Shergottite Y-980459
Jones J, Usui T, Alexander CO, Wang J & Simon J

11:45 Calcium Isotopes in Martian Meteorites
Gussone N, Magna T & Mezger K

12:00 **Keynote:** The Cl Isotope Composition of the Moon and Mars
Sharp Z, Shearer C, McCubbin F & Agee C

(Session 01d continues on Friday 19th PM on page 424)

02a: Redox Evolution of the Early Mantle, Oceans and Atmosphere

Session chaired by David Catling & Bernie Wood

09:30 The Oxidation State of Hadean Melts and Implications for the Composition of Earth's Early Atmosphere
Trail D, Watson EB & Tailby N

09:45 **Invited:** Copper Systematics in Arc Magmas and Implications for the Origin of Continents, the Pb-Paradox, and Copper Porphyry Deposits
Lee C-T, Chin E, Bouchet R, Luffi P, Dasgupta R, Morton D, le Roux V, Yin Q-Z, Albarède F & Blichert-Toft J

10:00 **Invited:** Linking Early Atmospheric Composition to Volcanic Degassing from a Reduced Mantle
Foley S & Eremets M

10:15 Volcanic Gases and Redox Biogeochemistry at the Archean-Proterozoic Transition
Gaillard F, Scaillet B & Arndt N

10:30 **Invited:** Redox and Early Earth's Sulfur Cycle
Farquhar J, Claire M, Domagal-Goldman S, Harms B, Poulton S & Zerkle A

10:45 Reconciling the Sulfur Atmospheric Cycle of Early Earth with the Geological Record
Philippot P & Van Zuilen M

11:00 Multiple Sulfur Isotopic Evidence for Multiple Origins of Late Archean and Early Paleoproterozoic Sediment-Hosted Pyrite, Quadrilátero Ferrífero of Minas Gerais
Strauss H, Cabral AR, Cording A & Koglin N

11:15 Experimental Tests for the Origin of Archean Sulfur Mass-Independent Fractionation during SO_2 Photolysis
Ono S & Whitehill A

11:30 Ultraviolet Spectra of $^{32/33/34/36}SO_2$; Implications for the Archaean Atmosphere
Ueno Y, Danielache S, Hattori S, Johnson M & Yoshida N

11:45 Seawater-Derived REY and HFSE Systematics in Archean BIFs
Viehmann S, Hoffmann JE, Münker C, Alexander BW & Bau M

12:00 Origin of Isotopically Heavy Fe in Pyrite from 2.75 Ga Wilgie Mia BIF, Western Australia
Lepland A, Van Kranendonk MJ & Whitehouse MJ

12:15 High Magnitude MIF-S due to Increased Atmospheric $p(O_2)$
Kurzweil F, Hannington M & Strauss H

(Session 02a continues on Friday 19th PM on page 425)

04e: Mantle Compositional Variability: From Ocean Basins to Melt Inclusions

Session chaired by John Maclennan, Leonid Danyushevsky & David Graham

09:30 Magma Sources at Eyjafjöll and Adjacent South Iceland Central Volcanoes
Thirlwall M, Manning C & Lowry D

09:45 The Role of North Atlantic Asthenosphere in the Genesis of Icelandic Lavas: Evidence from Heimaey
Manning C & Thirlwall M

10:00 Contrasting Mantle Signatures along the Mid-Atlantic Ridge (10-50°N)
Dosso L, Hamelin C, Hanan B, Thirlwall M & Silantyev S

10:15 Mantle Lithologies from Minor Elements in Olivine: Cape Verde
Barker A, Holm PM & Troll V

10:30 Mantle Controls on the Geochemistry of Kīlauea Lavas Erupted over the Last Millennium
Burns D, Pietruszka A, Norman M, Marske J, Garcia M & Rhodes JM

10:45 **Invited:** Heterogeneity in the Mantle Plume: Spatial Scales and Ages
Sobolev A, Hofmann A, Jochum K, Kuzmin D & Stoll B

11:00 **Invited:** Small-Scale Processes and Mantle Source Heterogeneity Recorded in Melt Inclusions from the Mid-Atlantic and Gakkel Ridges
Laubier M & Langmuir C

11:15 **Invited:** Mantle Heterogeneity Constraints from Abyssal Peridotite Sulfide Pb and Os Isotopic Compositions
Warren J & Shirey S

11:30 Pyroxenites in Peridotites from External Liguride Ophiolites (Italy): Insights on Small Scale Heterogeneities in MORB Mantle
Borghini G, Rampone E, Zanetti A, Class C, Cipriani A, Hofmann A & Goldstein S

11:45 Petrogenesis of the Oceanic Crust from Trace Elements in Basalt Glasses
O'Neill H & Jenner F

12:00 Oceanic Basalts Provide a Biased View of Mantle Composition
Regelous M, Haase K & Brandl P

12:15 **Invited:** Local and Regional Magmatic Modulators to Mantle Signatures in Erupted Mid-Ocean Ridge Lavas
Rubin K, Maclennan J, Sinton J & Hellebrand E

05h: Kimberlite, Carbonatite, and Strongly Alkaline Magmatism: Source-Forming Processes and Relations to Basaltic Magmatism

Session chaired by Sebastian Tappe, Dejan Prelevic & Graham Pearson

09:30 **Invited:** Kimberlites, Flood Basalts and Mantle Plumes: New Insights from the Deccan Large Igneous Province
Chalapathi Rao. NV & Lehmann B

09:45 Pb-Sr-Nd-Hf Isotope Variations of Megacrysts from Mesozoic Southern African Kimberlites Reflect Mixing of HIMU Melts with Deep Lithosphere
Janney P & Bell D

10:00 Rogue Hafnium Isotopes in Lac de Gras Kimberlites, Canada: Ultradeep vs. Shallow Mantle Processes
Tappe S, Pearson G, Kjarsgaard BA, Nowell G & Dowell D

10:15 Uniqueness of Kimberlite Magma: Its Source Characteristics and Transportation Systems Revealed by Isotope Signatures
Kaneoka I

10:30 Oxygen Isotopes in Perovskites from Kimberlites
Sarkar C, Storey C, Hawkesworth C & Sparks S

10:45 U-Pb Perovskite Ages of Kimberlites from the Rosário do Sul Cluster: Southern Brazil
Conceição R, Lenz C, Provenzano C, Sander A & Silveira F

11:00 **Invited:** Volatiles in the Kimberlite Melt – What Drives Ascent and Causes Explosive Eruption?
Kamenetsky V

11:15 High-Mg Carbonatitic HDFs,kimberlites and the SCLM
Weiss Y, Griffin W, Bell D & Navon O

11:30 **Invited:** The Lithium Isotopic Signature of Carbonatites
Halama R, McDonough WF, Rudnick RL & Bell K

11:45 The Origin of Carbonate Globules in Silicate Melts: Solids or Liquids?
McMahon S, Bailey K, Walter M & Caricchi L

12:00 U-Pb Geochronology and Lu-Hf Isotope Data from Meta-Carbonatites in the Southern Canadian Cordillera
Millonig LJ, Gerdes A & Groat LA

12:15 The First Stepwise Crushing Data on C, N and Ar Isotopic and Elemental Ratios in Guli Carbonatites
Buikin A, Verchovsky A, Grinenko V & Kogarko L

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06e: Deep Subduction of Crustal Rocks into the Mantle: Observations, Experiments, Models

Session chaired by Larissa Dobrzhinetskaya, Shah Wali Faryad, Taras Gerya & Alexei Perchuk

09:30 Decarbonation of Subducting Slab at Subarc Depth: Experimental Modeling
Perchuk A, Korepanova O & Yapaskurt V

09:45 Continental Materials Around the Bottom of the Mantle Transition Zone
Kawai K, Yamamoto S, Ichikawa H, Tsuchiya T & Maruyama S

10:00 **Keynote:** Super-Si Garnet Breakdown Kinetics and Implications for Craton Evolution
Spengler D, Nishihara Y & Fujino K

10:30 Fluids Nature at Peak of Ultrahigh-Pressure Metamorphism in Deep Subduction Zones – Evidence from Diamonds
Dobrzhinetskaya L, Wirth R, Green H & Sumino H

10:45 Discovery of Diamond and Coesite in Bohemian Granulites
Kotková J, O'Brien PJ & Ziemann MA

11:00 Diamond-Graphite Transformation: A NanoSIMS Isotope Study of Diamond-Graphite Inclusion in Zircon from the Kochetav Massif
Jacobsen B, Matzel J, Hutcheon I, Green H & Dobrzhinetskaya L

11:15 **Keynote:** Mechanisms of Deep Crustal Subduction and Exhumation: Insights from Numerical Modelling
Burov E

11:30 Evidence for Subduction History Recorded by Mineral Inclusions in High-Grade Metamorphics of the Modanubian Zone, Central Europe
Faryad SW, Lexa O, Racek M, Dolejš D & Jedlička R

11:45 Geochemical and U-Pb Age Constraints on the Occurrence of Polygenetic Titanites in UHP Metagranite in the Dabie Orogen
Gao X-Y, Zheng Y-F, Chen Y-X & Guo J-L

12:00 Continental Subduction, Slab Breakoff and Eduction: End-Member Processes for UHP Rock Histories
Sizova E, Duretz T & Gerya T

12:15 Coexistent Aqueous Fluid Phase and Melt in Lherzolites from Bultfontein, South Africa
Purchase M, Sommer H, Regenauer-Lieb K, Jung H & Gasharova B

08j: Nanoparticles, Interfacial Processes and Nuclear Waste Management

Session chaired by Andrey Kalinichev, Stepan N Kalmykov & Melissa Denecke

09:30 Plutonium Interactions with Pure and Substituted Iron and Manganese Oxyhydroxide Minerals
Nitsche H, Hu Y-J, Wang DL & Schwaiger LK

09:45 Plutonium Redox Reactions with Iron Oxides Under Anoxic Conditions
Kirsch R, Fellhauer D, Altmaier M, Rossberg A, Fanghänel T, Charlet L & Scheinost AC

10:00 PuO_{2+x}•nH_2O Nanoparticles Formation Upon Pu(V,VI) Sorption onto Hematite
Romanchuk A, Egorov A, Zubavichus Y, Shiryaev A & Kalmykov S

10:15 Laser-Induced Breakdown Detection (LIBD) of Uranium and Silica Colloids
Jung EC, Cho H-R & Park MR

10:30 Spectroscopic Study of Influence of Silica on the Stability of Actinide(IV) Colloids at Near-Neutral pH
Banerjee D, Weiss S, Zaenker H, Scheinost A & Hennig C

10:45 Competition between Lanthanides and Al for Humic Acid Binding
Marsac R, Davranche M, Gruau G & Dia A

11:00 The Uptake of Radionuclides into Nanoparticulate Hydroxyapatite
Handley-Sidhu S, Renshaw J, Stolpe B, Lead J & Macaskie L

11:15 Murataite-Pyrochlore Complex Oxide Series for Actinide Immobilization: Nanoscale Structure and Complexity
Krivovichev S, Urusov V, Yudintsev S, Pakhomova A & Stefanovsky S

11:30 Uranium Speciation in Opals from the Nopal I Deposit (Mexico)
Othmane G, Allard T, Menguy N, Vercouter T, Morin G, Calas G & Fayek M

11:45 STXM and XAS Study of Kaolinite Conversion into Berthierine-Like Mineral
Rivard C, Montarges-Pelletier E, Pelletier M, Michot LJ, Vantelon D, Karunakaran C, Villieras F & Michau N

12:00 Density Functional Study of Uranyl Adsorption on Solvated Surfaces of Clay Minerals
Kremleva A, Krueger S & Roesch N

12:15 Consistent Treatment of Entropy, Enthalpy and Volume Effects of Multi-Dentate Adsorption Reactions
Kulik D & Lützenkirchen J

09a: Magmatic Volatiles, Climate, and Earth Evolution

Session chaired by David Pyle & Bernard Marty

11:45 S Isotopes Distinguish Two S Pulses at Terrestrial Cretaceous-Paleogene Boundary Sections
Cousineau M, Therrien F, Maruoka T, Wing B & Fortin D

12:00 Did the AD 1452 Kuwae Eruption Have Global Climatic Impact?
Nemeth K, Cronin S & Smith I

12:15 Release Rate of Pollutants, Nutrients and Protons from Pristine Eyjafjallajökull Ash
Alfredsson HA, Gislason SR, Stipp SLS & Burton KW

09c: Magmatic Volatiles: From Natural and Experimental Systems to Thermodynamics and Numerical Modeling. Their Influence on Magma Properties

Session chaired by Nicole Metrich & Roman Botcharnikov

09:30 **Keynote:** Progress in Understanding of Sulfur in Subduction Zone Magmas
Mandeville C, Shimizu N, Kelley K, Metrich N & Fiege A

10:00 Post-Entrapment Changes to H_2O and CO_2 in Olivine-Hosted Melt Inclusions
Gaetani G, O'Leary J & Shimizu N

10:15 Evolution of the δD Value in Water-Rich Basaltic Melt Inclusions during Volcanic Processes
Metrich N, Deloule E & Di Muro A

10:30 **Invited:** Carbon Isotope Evolution in Magmatic Systems by CO_2 Fluxing
Yoshimura S & Nakamura M

10:45 The Plumbing System of the Ischia Island: A Physico-Chemical Window on the Fluid-Saturated and CO_2-Sustained Neapolitan Volcanism (Southern Italy)
Moretti R, Arienzo I, Orsi G, Civetta L & D'Antonio M

11:00 **Invited:** Inverse Modelling of Gas Chemistry Measurements
Burgisser A, Alletti M & Oppenheimer C

11:15 Lithium-Boron Isotope Fractionation during Degassing of Rhyolitic Magma
Koga KT, Rose-Koga EF, Laporte D, Cluzel N, Shimizu N & Deloule E

11:30 **Invited:** Volatiles and Viscosity
Dingwell DB

Session 09a follows this session in this room. For details see page 405.

10g: Organic and Inorganic Fluid-Fluid-Rock Interactions in CO_2 Storage Systems

Session chaired by Axel Liebscher, Andrea Vieth-Hillebrand & Ann-Kathrin Scherf

09:30 Can Seawater Promote *in situ* Mineral Sequestration?
Wolff-Boenisch D, Wenau S, Oelkers E & Gislason S

09:45 Mineral Alterations due to Accessory Gases in the Geological Storage of CO_2
Heeschen K, Risse A, Stadler S & Ostertag-Henning C

10:00 An Experimental Study of Brine-CO_2 Metal Fractionation: Applications to the Geological Storage of CO_2
Rempel K, Liebscher A, Heinrich W & Schettler G

10:15 Carbonation of Steel Slag I
Berryman E, Williams-Jones A, Migdisov A & van der Laan S

10:30 Fault Zone Stability in Cap Rocks Affected by CO_2
Blume J, Eckhardt J-D, Stosch H-G, Neumann T, Balthasar K, Mutschler T & Triantafyllidis T

10:45 **Keynote:** Oxygen Isotope Exchange between H_2O and Super Critical CO_2: Lab Experiments and Field Evidence
Johnson G, Mayer B, Nightingale M & Shevalier M

11:15 Geochemical Monitoring of Reactive Percolation Experiments Using Carbon Stable Isotopes
Myrttinen A, Jeandel E, Ukelis O, Dimier A, Becker V, van Geldern R & Barth JAC

11:30 Adsorption of Organic Ligands on Silicate Mineral Surfaces in the Presence of CO_2 and Water: Insight into Olivine Dissolution Rates
Johnson N, Thomas B, Maher K, Bird D, Rosenbauer R & Brown G

11:45 Effects of Organic Ligands on Supercritical CO_2–Induced Phlogopite Dissolution and Secondary Mineral Formation
Jun Y-S, Shao H & Ray J

12:00 Magnesite Growth Inhibition by Organic Ligands: Complexation and Adsorption
Gautier Q, Bénézeth P, Jordan G, Berninger U-N & Schott J

12:15 Organic and Inorganic scCO_2-rock Interactions – Results from Laboratory Experiments
Scherf A-K, Schulz H-M, Vieth-Hillebrand A & Group K

11b: Ore Deposits and the Role of the Lithospheric Mantle – Sponsored by SGA

Session chaired by Wolfgang Dereck Maier, Sisir K. Mondal, Thomas Oberthür & Marco Fiorentini

09:30 **Keynote:** Ultrahigh-Pressure Podiform Chromitites as a Possible Deep Recycled Material
Arai S, Ahmed A & Miura M

10:00 Geodynamic Implications of >1 Ga Re-Os Model Ages in PGM from the Dobromirtsi Ultramafic Massif, Central Rhodope, Bulgaria
Gonzalez-Jimenez JM, Griffin WL, Gervilla F, Kerestedjian T, O'Reilly SY & Pearson NJ

10:15 PGE Contents and Spinel Compositions of Different Podiform Chromitites in the Eastern Anatolia Complex, Turkey
Colakoglu AR, Gunay K & Prichard H

10:30 Gold and Palladium Mineralization at Est of Bou Azzer Ophiolite, Morocco
Elghorfi M, Ennaciri A, Maacha L & Oberthur T

10:45 Hydrothermal Co-Ni Mineralization, Associated with Serpentinized Peridotites: Bou Azzer, Morocco
Ennaciri A, Maacha L, Barbanson L & Maier WD

Session 11g follows this session in this room. For details see page 409.

11g: The Rare Earth Elements: Their Deposits, Geochemistry, and Environmental Impact

Session chaired by Michael Bau, Ulrich Schwarz-Schampera & James R. Hein

11:00	**Keynote:** Biotransformation Rare Earth Elements *Ohnuki T*
11:30	Key Impact of Soil (Fe/Organic C) Ratio on REE Shallow Groundwater Patterns *Pédrot M, Dia A, Davranche M & Gruau G*
11:45	Rare Earth Elements in Pore Waters of the Bering Sea Sediments *Huh Y & Soyol-Erdene T-O*
12:00	Rhine River: First Case of Anthropogenic Lanthanum as a Dissolved Microcontaminant in the Hydrosphere *Kulaksiz S & Bau M*
12:15	Mussel Shells as Archives of Geogenic and Anthropogenic Dissolved REE *Bau M, Merschel G, Kulaksiz S, Schmidt K, Brenner M, Balan S & Koschinsky A*

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12h: Geochemistry of Ice Sheets and their Basal Environments

Session chaired by Jeff Severinghaus & Barbara Stenni

09:30 **Medal:** Krypton and Xenon in Air Bubbles from Ice Cores as Tracers of Past Ocean Temperature
Severinghaus J & Kawamura K

10:15 **Keynote:** Past Fire Reconstructions in Ice Core through the Determination of Specific Molecular Markers
Barbante C

10:45 Glacial Interglacial Aerosol Input over Antarctica and the Global Hydrological Cycle
Petit JR & Delmonte B

11:00 **Invited:** How are Oceanic $\delta^{18}O$ Changes Imprinted in Ice Core Records ?
Jouzel J, Hoffmann G, Landais A, Stenni B, Masson-Delmotte V & Waelbroeck C

11:15 A 700 Year Record of Accumulation Rates at Dome A, Antarctica
Jiang S, Li Y, Cole-Dai J & Ferris D

11:30 Volcanic, Solar Activity, and Atmospheric Circulation Influences on Cosmogenic ^{10}Be Fallout at Vostok and Concordia (Antarctica) over the Last 60 Years
Baroni M, Bard E, Petit J-R, Magand O & Bourles D

11:45 Spatio-Temporal Variation of Total Mercury Concentrations in Antarctic Snowpack
Han Y, Huh Y, Hong S, Hur SD & Motoyama H

12:00 Stable Isotopes of Snow Precipitation at Concordia Station (East Antarctica)
Dreossi G, Stenni B, Braida M, Scarchilli C, Valt M, Cagnati A, Frezzotti M, Bonazza M, Genoni L, Frosini D, Karlicek D & Udisti R

12:15 Seasonal Shifts in Concentration, Age, and Lability of Carbon Exported from the Greenland Ice Sheet (GrIS)
Bhatia M, Das S, Charette M, Xu L & Kujawinski E

13c: Air Quality and Climate: Bridging the Scales

Session chaired by Mian Chin & Lorraine Remer

11:30 **Keynote:** Global Asssessments of Linkages between Air Quality and Climate
Dentener F

12:00 **Invited:** Modeling Local and Remote Impacts of Amazonian Biomass Burning Aerosols
Longo K, Freitas S, Rosario N, Siqueira R, Judith H, Madeleine G & Ignotti E

12:15 **Invited:** Aerosol Spatial Scales in Observations and Models: Implications for the Aerosol Direct Effect
Colarco P

(Session 13c continues on Friday 19th PM on page 435)

13e: Land-Atmosphere Interactions: The Role of Aerosols

Session chaired by Almut Arneth, Annica Ekman & Janne Rinne

09:30	**Invited:** Global Constraints on Biogenic Particles *Heald C, Spracklen D & Guenther A*
09:45	**Invited:** Vegetation and Climate: The Potential Role of Terpene Emissions and Aerosol Particle Formation on Local Climate Conditions *Bonn B*
10:00	Primary Biological Organics in Ambient PM in the Southeastern U.S. *Shaw S, Casuccio G, Edgerton E, Lersch T, Rohr A & Thorne P*
10:15	**Keynote:** Biogenic Volatile Emissions and their Contribution to Organic Aerosol Mass *Kiendler-Scharr A, Wildt J, Mentel T, Dal Maso M, Kleist E & Tillmann R*
10:45	**Invited:** Impact of Biological and Mineral Dust Aerosols on Mixed-Phase Clouds *Hoose C, Anquetil-Deck C, Burrows S, Hummel M, Kristjansson JE & Möhler O*
11:00	**Invited:** Putting Constraints on the Life Cycle of Organic Carbon Based on Ecosystem Scale Flux Measurements *Karl T*
11:15	Fossil Fuel Derived Deposition Drives Export of Ancient, Labile Carbon from Alaska's Glaciers *Stubbins A*

Session 13c follows this session in this room. For details see page 411.

14a: Critical Zone Processes at Multiple Scales

Session chaired by Heather Buss & Jérôme Gaillardet

09:30 **Keynote:** Integrating Climate and Landscape Controls on Regolith Depth, Chemistry and Mineral Assemblage
Rasmussen C, Lybrand R, Jardine A, Pelletier J, Troch P & Chorover J

10:00 **Invited:** Quantifying Rates and Mechanisms of Shale Weathering Across a Continental-Scale Climosequence
Brantley SL, Dere A & White T

10:15 Influence of Soil Shielding on Local to Global Chemical Weathering Rates
Hartmann J, Moosdorf N & Lauerwald R

10:30 **Invited:** The Effect of Time and Climate on Volcanic Soil Formation
Gislason S, Eiriksdottir E, Alfredsson H, Sigfússon B, Jones M & Oelkers E

10:45 **Invited:** Assessing the Factors Controlling the Temporal Variations of Weathering Fluxes in a Tropical Watershed: Mule-Hole (South India)
Riotte J, Braun J-J, Maréchal JC, Violette A, Deschamps P, Ruiz L, Lagane C, Muddu S, Subramanian S, Kumar C & Audry S

11:00 **Invited:** Seasonal Magnesium Isotope Variations in Soil Solutions Reflecting Physico-Chemical Processes Controlling Soil Weathering Fluxes
Opfergelt S, Georg B, Burton K, Guicharnaud R, Siebert C, Gislason S & Halliday A

11:15 **Invited:** Probing the Silicon Isotope Signature of Supply Limited Chemical Weathering in the Cordillera Central of Costa Rica
West AJ, Opfergelt S, James R, Pogge von Strandmann P & Burton K

11:30 Agriculture's Impact on the Si Cycle by Accelerated Biomineralisation
Sullivan L & Parr J

11:45 Modeling of Soil Degradation in the Czech Critical Zone Observatories
Kram P & Hruska J

12:00 Assessing Organic Carbon Distribution in the Koiliaris Critical Zone Catchment (Greece) by Using Geostatistical Techniques
Aksoy E, Panagos P, Nikolaidis N & Montanarella L

12:15 **Invited:** Christina River Basin Critical Zone Observatory: Carbon-Mineral Interactions from Molecular to Basin Scales in the Anthropocene
Yoo K, Aufdenkampe A, Chen C & Sparks D

15i: Metal Stable Isotope Signals in Earth's Oceans and Seas

Session chaired by Thomas Bullen & Matthew Fantle

09:30 Sr Isotopic Composition of Manganese Nodules: Recorder of Cambrian Ocean
Harlavan Y, Bar-Matthews M & Matthews A

09:45 The Strontium Stable Isotope Composition of Seawater during Glacial Intervals
Stevenson E, Burton K, Parkinson I, Anand P, Hathorne E & Mokadem F

10:00 **Keynote:** Strontium Isotope Fractionation and its Application in Earth System Sciences
Eisenhauer A, Böhm F, Vollstaedt H, Krabbenhöft A, Liebetrau V, Fietzke J, Kisakürek B & Erez J

10:30 Stable Sr Isotopes in Seawater
Galer S, Krabbenhöft A, Abouchami W, Borngässer G & Feldmann H

10:45 The Paleozoic $\delta^{88/86}$Sr-Seawater Record – Quantifying Carbonate Production Rates at Mass Extinction Events
Vollstaedt H, Eisenhauer A, Böhm F, Fietzke J, Krabbenhöft A, Liebetrau V, Farkas J & Veizer J

11:00 Paired Sr Isotope (^{87}Sr/^{86}Sr, $\delta^{88/86}$Sr) Systematic of Pore Water Profiles: A New Perspective in Marine Weathering and Seepage Studies
Liebetrau V, Haeckel M, Eisenhauer A, Scholz F, Hensen C & Reitz A

11:15 Cadmium Isotopic Composition in Cultured Marine Phytoplankton
Gault-Ringold M, Strzepek R, Stirling C, Frew R & Hunter K

11:30 Cd Isotope Fractionation in Some Phytoplankton: A Novel Proxy for Fe Limiting Status in the Oceans
Ho T-Y, Yang S-C & Lee D-C

11:45 Isotopic Fractionation of Cadmium into Calcite
Horner T, Rickaby R & Henderson G

12:00 Cd Behaviour in Arctic Estuarine Systems Using Cd Isotopes and Concentrations Analysis
Lambelet M, Rehkämper M, Van De Flierdt T, Xue Z, Kreissig K, Coles B, Andersson P & Porcelli D

12:15 Biogeochemical Cycling of Cadmium in the Tasman Sea: Constraints from Cadmium Isotopes
Stirling C, Gault-Ringold M, Breitbarth E & Butler E

(Session 15i continues on Friday 19th PM on page 436)

16b: Understanding the Fate and Transformations of Metal and Radionuclide Contaminants in Unsaturated and Saturated Subsurface Environments

Session chaired by Scott Brooks, Dawn Wellman, Henning Prommer & Ann Miracle

09:30 **Keynote:** Pore-Scale Process Coupling and Its Effect on the Apparent Rates of Uranyl Surface Complexation
Liu C, Kerisit S, Ewing R, Shang J & Zachara J

10:00 Impact of Groundwater Composition and Diffusive Transport Limitations on Uraninite Stability
Giammar D, Cerrato JM, Barrows C, Wang Z, Mehta V, Lezama-Pacheco J & Bargar J

10:15 A Meso-Scale Laboratory Study of Stable Isotope Variations during Uranium Bioremediation
Druhan J, Steefel C, Conrad M & DePaolo D

10:30 Multi-Isotopic Constraints on Contamination History, Contaminant Migration and Structure of the F-Area Acidic Plume, Savannah River Site
Christensen JN, Denham ME, Conrad ME, Bill M & Wan J

10:45 On Modeling $H^+$and U Transport Behavior in an Acidic Plume
Spycher N, Mukhopadhyay S, Sassen D, Murakami H, Hubbard S, Davis J & Denham M

11:00 Evaluation of Chromium Reductive Immobilization and Oxidative Re-mobilization in Flow-Through Aquifer Sediment Columns
Varadharajan C, Nico P, Yang L, Marcus M, Han R, Bill M, Larsen J, Molins S, Steefel C, Conrad M, Brodie E & Beller H

11:15 Cr Isotope Fractionation during Biogeochemical Reduction of Cr(VI) by Hanford Native Aquifer Microbial Communities
Qin L, Christensen J, Brown S, Yang L, Conrad M, Sonnenthal E & Beller H

11:30 Nuclear Imaging of ^{99m}Tc Transport and Immobilisation through Porous Media
Corkhill C, Bridge J, Hillel P, Utton C, Hyatt N, Banwart S & Romero-Gonzalez M

11:45 Non-Invasive Geophysical Imaging for Characterization of Engineered *in situ* Radionuclide Precipitation
Clark B, Gillow J, Preston P, Ilgner B & Morie S

12:00 **Invited:** Technical and Policy Challenges in Deep Vadose Zone Remediation of Metals and Radionuclides
Wellman D & Truex M

(Session 16b continues on Friday 19th PM on page 437)

17a: Biogeochemical Cycling in Watersheds

Session chaired by Martin Novak & Maria Dittrich

09:30 Monitoring Nutrients Cycles at Catchment Scale
van Tol D & van der Grift B

09:45 Combining Spot Samples and Continuous Sampling to Study Small Catchment Storm Runoff
Palmer M, Gkritzalis-Papadopolous A & Mowlem M

10:00 Impact of Water Sources and Flow Paths on Carbon in Streams of Seasonally Snow-Covered Catchments
Perdrial J, Brooks P, Chorover J, Harpold A, Heidbuechel I, McIntosh J, Ray J & Zapata-Rios X

10:15 Mechanisms of Nitrogen Dissipation in an N-Saturated Subtropical Forest in Southwest China
Zhu J, Dörsch P, Silvennoinen H & Mulder J

10:30 **Invited:** Isotope Constraints on the Biogeochemical Cycling of Calcium (Ca) in a Base-Poor Forest Ecosystem
Farkaš J, Déjeant A, Novák M & Jacobsen S

10:45 **Invited:** Magnesium Isotope Fractionation in a Hardwood Forest of Southern Québec, Canada
Worsham S, Holmden C & Bélanger N

11:00 Usefulness of Stable Isotopes in Small Catchment Studies: Overview of Results from the Stressed Ecosystems of Central Europe
Novak M, Buzek F, Jackova I, Chrastny V, Farkas J, Fottova D, Voldrichova P, Stepanova M & Prechova E

11:15 Copper and Zinc Isotope Composition of China and India Dust Sources
Dong S, Weiss DJ, Najorka J, Ferrat M, Spiro B, Sun Y, Gupta S & Sinha R

11:30 Sources and Sinks of Acetate in an Acidic Peatland
Hädrich A, Heuer V, Herrmann M, Hinrichs K-U & Küsel K

11:45 Controls on Lignin Degradation in a Temperate Deciduous Forest
Klotzbücher T, Kaiser K & Kalbitz K

Session 17j follows this session in this room. For details see page 418.

17g: Dynamics, Mobility and Bioavailability of Trace Elements in Contaminated Environments

Session chaired by Michael Komarek, Melanie Davranche, Carla Koretsky & Martin Mihaljevic

09:30 Cr(VI) Adsorption on γ-Alumina
Koretsky C & Reich T

09:45 Bacterial Cells can Biosorb and Accelerate the Transport of Heavy Metals Mixtures in Soils
Desaunay A & Martins JMF

10:00 Bioavailability and Toxicity of Metals in an Estuary Contaminated by Acid Mine Drainage
Braungardt C, Money C & Achterberg E

10:15 Sediment Diagenesis Modelling in a AMD Contaminated Reservoir
Torres E, Couture RM, Shafei B, Ruiz Cánovas C & Ayora C

10:30 Post-Deposition Diffusion of ^{137}Cs in Lake Sediments
Klaminder J, Appleby P & Renberg I

10:45 Stability and Transformation of Pb Smelter Fly Ash in Soils
Ettler V, Mihaljevic M & Sebek O

11:00 Trace Metal Concentrations and Pb Isotopes of Sediments from Barkley Sound, British Columbia
Ikehata M, Shiel AE & Weis D

11:15 Selenium Uptake in Otoliths from Cold-Water Fish Species Captured Downstream from Coal Mining
Friedrich L, Halden N & Palace V

11:30 Environmental Geochemistry of Cu in Agricultural Soils Treated with Cu-Based Fungicides
Komarek M & Cadkova E

11:45 Strontium Incorporation into Carbonate Granules Secreted by Earthworms
Brinza L, Mosselmans FW, Schofield P, Quinn PD & Hodson ME

12:00 Agricultural Impact on P and Metal Availability in Stream Sediments
Hund SV, Shiel AE, Brown S, Lavkulich LM & Weis D

12:15 Dissolution Kinetics of Pd and Pt from Automobile Catalysts by Naturally Occurring Complexing Agents
Mihaljevic M, Sebek O, Strnad L, Ettler V, Jezek J, Stedry R & Drahota P

17j: Biogeochemical Processes in Redox-Dominated Environments: From Cold Seeps to Soils

Session chaired by Gert De Lange, Céline Pallud, Christian Hensen & Anniet Laverman

12:00 Lignin Decomposition in Paddy Soils as Affected by Redox Conditions
Cerli C, Liu Q, Hanke A, Kaiser K & Kalbitz K

12:15 Impact of Ferrihydrite Coating and Aeration Conditions on Microbial Selenium (Se) Reduction and Retention in Artificial Soil Aggregates
Kausch M & Pallud C

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19e: Simulation of Geofluids from Melts to Aqueous Solutions

Session chaired by Lars Stixrude & Ariel Chialvo

09:30 **Keynote:** Melts in the Deep Mantle: Insights from First Principles Molecular Dynamics
de Koker N, Stixrude L & Karki B

10:00 **Invited:** Fluid-Fluid Phase Separation Under Metamorphic Conditions: MD Simulations of a Generalized Composition H_2O-CO_2-NaCl
Kalinichev A

10:15 Atomic Environment of Y in Silicate Melts from Molecular Dynamics and X-Ray Absorption Spectroscopy
Haigis V, Simon S, Wilke M & Jahn S

10:30 **Invited:** Molecular Dynamics Simulation of the Electrical Double Layer on Smectite Clay Surfaces
Bourg I & Sposito G

10:45 **Invited:** Viscosity of MgO-SiO_2 Melt System from First Principles Simulations
Karki B

11:00 Silicic Acid: An Experimental and *ab Initio* Study of Explicit Solvation and Reaction Kinetics
McIntosh G, Swedlund P & Sohnel T

11:15 **Invited:** Theories of Fluids at Extreme Conditions
Nezbeda I

11:30 Direct Molecular Simulation of Aqueous Electrolyte Solubility
Moucka F & Smith W

11:45 **Invited:** Metal Complexation in Hydrothermal Fluids: Insights from *ab Initio* Molecular Dynamics
Sherman D & Mei Y

12:00 **Invited:** Liquid Carbonates Investigated by First-Principles Molecular Dynamics Simulations
Vuilleumier R, Seitsonen A, Sator N & Guillot B

12:15 Isotope Fractionation due to Temperature Gradients: Molecular Dynamics Simulations
Goel G, Lacks D, Van Orman J, Lundstrom C & Lesher C

20j: Structure, Elasticity and Thermodynamics of Minerals

Session chaired by Michael A. Carpenter, Tiziana Boffa Ballaran & Alan Woodland

09:30 **Medal:** Tilts Without Tears – Structure and Elasticity of Feldspars
Angel R

10:15 **Keynote:** The Nanoscale Structure of Complex Perovskite-Type Oxides with Superb Dielectric Properties
Mihailova B

10:45 Structural Distortion of $MgSiO_3$ Perovskite and the Influence of Fe and Al at Pressures of the Earth's Lower Mantle
Boffa Ballaran T, Kurnosov A, Glazyrin K, Merlini M, Hanfland M & Frost DJ

11:00 Raman Spectroscopic Insight into Structural Changes in Berlinite with High Pressure and Temperature
Watenphul A & Schmidt C

11:15 A Novel Technique for F/OH Apatite Series Synthesis and Early Results on Thermodynamic Mixing Properties of Fluor-Hydroxylapatite Solid Solutions
Hovis G

11:30 Na-Bearing Majoritic Garnets in the System $Mg_3Al_2Si_5O_{12}$–$Na_2MgSi_5O_{12}$ at 11–20 GPa: Solid Solutions and Structural Peculiarities
Bobrov A, Dymshits A, Bindi L, Litasov K, Shatskiy A, Ohtani E & Litvin Y

11:45 Elastic Anomalies due to Spin State Transitions in Cobaltate Perovskites: Analogue Behaviour for Fe^{2+} in $(Mg,Fe)SiO_3$
Zhang Z, Koppensteiner J, Schranz W & Carpenter MA

12:00 Anelastic Processes in Minerals at High Temperature: Examples of Quartz and Spinel
Redfern S, Peng Z, Walsh J & Daraktchiev M

12:15 Elasticity and Anelasticity of Relaxor Ferroelectrics
Carpenter M, Bryson J, Kisi E, Farnsworth S & Catalan G

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	Chamber Hall	Club A	Club B/C	Club D	Club E	Club H	Conference Hall	Forum Hall	Meeting Hall I
	11f	02a	06d	01d	04g	05h	09e / 09b	17i	16b
14:00	Cabral	Anbar	Hermann	Neal	Pearce	Carlson	Reubi	Jay	Davis
14:15				Greenhagen	Kelemen		Sims	Girguis	McCray
14:30	Reith	Said	Arculus	Hauri		Nikogosian	Hora	Perner	Plathe
14:45	Suárez	Kanzaki	Tamura	Pahlevan	Liang	Pilbeam	Siebel	Learman	Namgung
15:00	Tredoux	Bekker	McAlpine	Füri	Collerson	Guzmics	Heaton	Loy	Lee
15:15	Uysal	Poulton	Chen	Boyce	Andrault	Hilton	Colin	Dippold	Greskowiak
15:30	Bedard	Williford	Faccini	Magna	Fiquet	Tiberindwa	Oppenheimer	Niggemann	Ptacek
15:45	Helmy	Melezhik	Wada	Valley	Klemme	Marzoli		Kujawinski	Diener
16:00	Tomkins	Van Kranendonk	Pirard	Fischer-Gödde	Gazel	Arzamastsev	Cardellini	Hertkorn	Lezama Pacheco
16:15	Kollegger	Asael	Chen	Rai	Tirone	Schaltegger	Weber	Milucka	Hartog
16:30	Dare	Pogge von Strandmann	Padrón-Navarta	Grange	Okoemova	Basei	Hartnett	Mayali	Perdrial
16:45	Semenova	Chen	Malatesta	Anderson	Bonadiman	Deniz	Aiuppa		Wunsch

	Meeting Hall IV	Meeting Hall V	North Hall	Panorama Hall	Small Hall	Small Theatre	South Hall	Terrace 1	Terrace 2
	08e	17j	13c	15i	19h / 19i	20j / 20f	11g	12c	22d / 22a
14:00	Van Loon	Koretsky	Andreae	Holmden	Militzer	Woodland	Herwartz	McManus	Fenn
14:15				Fantle		Groat	Nakada	Arienzo	Prendergast
14:30	Kautenburger	Wehrli	Bauer	Amor	Ammann	Sochalski-Kolbus	Kogarko	Ménot	Silva Tamayo
14:45	Banik	Druschel	Yu	Scheiderich	Tsuchiya	Mysen	Kynicky	Hillaire-Marcel	Çelik Karakaya
15:00	Havlova	Laverman	Quinn	Nägler	Côté	Simon	McGloin	Marcantonio	Moghaddasi
15:15	Belline	Pallud	Karnieli	Voegelin	Freund	Galoisy	Wall	Vaks	Hodell
15:30	Park	Glazer	Park	Vance		Giuli	Roberts	Moeini	Krüger
15:45	Eidner	Hensen	Satheesh	Little	Benzerara	Lazor	Schmidt Mumm	Kromer	Sample
16:00	Holliday	Antler	Liu	Sreenivas	Martin	Calas	Du		Turner
16:15	Liu	Schneider Mor	Kondragunta	Noordmann	Bargar	Jahn	Simandl	Bar-Matthews	Ukstins Peate
16:30	Finck	Hepburn	Boers	Strady	Starr	Dini	Hein	Stein	Schieber
16:45	Um		Artaxo	Reynolds	Bagus	Bartels	Oksuz	Bookman	Loyd

01d: Mars and the Moon: New Discoveries from Sample Science to Recent Missions

Session chaired by Anne Peslier, Tomas Magna & Carsten Münker

14:00	**Invited:** A New Moon *Neal C*
14:15	Comparison of Diviner Lunar Radiometer Observations of Apollo Sites and Apollo Soils Measured in Simulated Lunar Environment *Greenhagen B, Thomas I, Bowles N, Allen C, Donaldson Hanna K, Foote E & Paige D*
14:30	The Volatile Content of Primitive Lunar Volcanic Glasses *Hauri E, Saal A, Rutherford M & Van Orman J*
14:45	Volatile Loss via Outgassing of the Lunar Magma Ocean *Pahlevan K & Karato S*
15:00	Origin and Flux of Lunar (Micro-) Impactors: Constraints from N-Ar Analyses of Single Luna 24 Grains *Füri E, Marty B & Assonov S*
15:15	Sulfur Speciation in Lunar Apatite *Boyce J, Ma C, Eiler J, Liu Y, Stolper E & Taylor L*
15:30	Lithium Isotope Composition of Lunar Crust – Rapid Crystallization and Post-Solidification Quiescence? *Magna T & Neal C*
15:45	Lunar Zircon: Primitive $\delta^{18}O$ of Dry Evolved and Mafic Magmas *Valley J, Spicuzza M & Ushikubo T*
16:00	Age and Nature of Meteoritic Components on the Moon *Fischer-Gödde M & Becker H*
16:15	Constraints on the Formation of a Lunar Core from Metal-Silicate Partitioning of Siderophile Elements *Rai N & van Westrenen W*
16:30	Deciphering Mafic and Felsic Lunar Magmatic Events: Insight from Zircon *Grange M, Nemchin A, Timms N, Pidgeon B & Meyer C*
16:45	Portable Rb-Sr Geochronology *Anderson FS, Nowicki K & Whitaker T*

02a: Redox Evolution of the Early Mantle, Oceans and Atmosphere

Session chaired by David Catling & Bernie Wood

14:00 **Keynote:** Whither the Whiff?
Anbar A, Kendall B, Reinhard C & Lyons T

14:30 Positive Ce Anomalies and U-Enrichment in Archean Volcanics: Implications for Oxygenated Oceans
Said N, Kerrich R & Manikyamba M

14:45 Fe(II) Oxidation Under Very Low O_2 Conditions: New Rate Law and its Implication
Kanzaki Y & Murakami T

15:00 **Invited:** Oxygen Overshoot and Recovery during the Early Paleoproterozoic
Bekker A & Holland H

15:15 **Invited:** The Anatomy of the Great Oxidation Event
Poulton S, Bekker A, Farquhar J, Zerkle A, Johnston D & Canfield D

15:30 Transitional Oxygenation Recorded in the Paleoproterozoic Turee Creek Group, Western Australia
Williford K, Van Kranendonk M, Ushikubo T, Kozdon R & Valley J

15:45 Abundant Marine Sulphate in the Palaeoproterozoic: Models Come and Go, but the Rock Record Endures
Melezhik V, Fallick A & Rychanchik D

16:00 Freeze-Fry Cycles in the Paleoproterozoic Turee Creek Group, Western Australia
Van Kranendonk M, Lepland A & Yamaguchi K

16:15 Molybdenum Isotopes as Oceanic Paleoredox Proxy of the Paleoproterozoic Shunga Event
Asael D, Rouxel O, Reinhard C, Lyons T & Kump L

16:30 Se Isotope Evidence for Atmospheric Oxidation at ~0.6 Ga
Pogge von Strandmann P, Elliott T, Catling D & Poulton S

16:45 Redox Evolution of the Late Neoproterozoic to Early Cambrian Ocean on Yangtze Platform, China
Chen X, Vance D, Ling H, Archer C, Shields G & Och L

04g: Merging Experiments, Models, and Geochemical Observations of Mantle Melting

Session chaired by Paul Asimow, Claude Herzberg & Sebastien Pilet

14:00 Newly-Discovered Abyssal Peridotite Mantle Xenoliths Constrain Mid-Ocean Ridge Melting Models
Pearce J, Leat P, Barry T & Tindle A

14:15 **Keynote:** Mantle Melting and Melt Transport beneath Oceanic Spreading Ridges
Kelemen P

14:45 Waves, Channels, and Diffusive Porous Flow: Geochemical Implications for Melt Migration in an Upwelling Heterogeneous Mantle
Liang Y & Schiemenz A

15:00 Generation of HIMU and EM-1 Reservoirs by CO_2-Fluxed Lower Mantle Melting: Implications for OIBs, Kimberlites and Carbonatites
Collerson K, Williams Q, Ewart T & Murphy D

15:15 Melting Properties of Chondritic Mantle to the Core-Mantle Boundary
Andrault D, lo Nigro G, Bolfan-Casanova N, Garbarino G & Mezouar M

15:30 Melting of Peridotite to 140 GPa
Fiquet G, Auzende A-L, Siebert J, Corgne A, Bureau H, Ozawa H & Garbarino G

15:45 The Garnet-Spinel Transition in Fertile and Depleted Mantle: Experimental Data, Thermodynamic Calculations and Implications for Magmatic Processes
Klemme S

16:00 Melting Conditions with PRIMELT: Examples and Future Work
Gazel E, Herzberg C & Asimow P

16:15 On the Thermal and Dynamic Requirements for Mantle Melting
Tirone M & Ganguly J

16:30 Experimental Study of Partition of Rare Elements between Minerals and Melts of Diamond Forming Eclogite-Carbonatite and Peridotite-Carbonatite Systems
Okoemova V, Vasiliev P, Kuzyura A, Litvin Y, Wall F & Jeffries T

16:45 Numerical Modelling for Peridotite Phase Melting Trends in the SiO_2-Al_2O_3-FeO-MgO-Cao System at 2 GPa
Bonadiman C & Coltorti M

05h: Kimberlite, Carbonatite, and Strongly Alkaline Magmatism: Source-Forming Processes and Relations to Basaltic Magmatism

Session chaired by Sebastian Tappe, Dejan Prelevic & Graham Pearson

14:00 **Keynote:** Alkalic Magmas and the Diversity of Mantle Compositional Variation
Carlson R

14:30 Near-Source Compositions of Italian Kamafugite Melt
Nikogosian I & Van Bergen M

14:45 Melt Compositions and Processes in the Kimberlite Province of Southern West Greenland
Pilbeam L, Nielsen T & Waight T

15:00 Melt Inclusions in Coexisting Perovskite, Nepheline, Magnetite and Clinopyroxene in Pyroxene Melilitolite from Kerimasi Volcano, Tanzania
Guzmics T, Mitchell RH, Berkesi M, Szabó C & Milke R

15:15 Superplume Control of East Africa Rift Volcanism: Helium Isotope Evidence from Alkaline Magmatism of Tanzania
Hilton D, Halldorsson S, Barry P, Fischer T, De Moor M, Ramirez C, Mangasini F & Scarsi P

15:30 **Invited:** Craton Destabilization and Alkaline Magmatism in Equatorial East Africa
Tiberindwa J, Link K, Barifaijo E & Foley S

15:45 Origin of Cameroon Line Basanites from Metasomatized Lithosphere
Marzoli A, Aka F, Chiaradia M, Reisberg L & Merle R

16:00 Paleozoic Tholeiite Magmatism in the Kola Province, Russia: Relations with Alkaline Magmatism
Arzamastsev A & Arzamastseva L

16:15 Alkaline Mantle Melts Pinpoint Late Triassic Thinning of the Southern Alpine Lithosphere (Ivrea Zone, Italy)
Schaltegger U, Müntener O, Ulianov A, Ovtcharova M, Peytcheva I, Antognini M & Girlanda F

16:30 U-Pb Zircon Ages of the Alto Paranaíba and Juína Kimberlitic Provinces, Brazil
Basei M, Svisero D, Iwanuch W & Sato K

16:45 Confocal Raman Spectroscopic Characteristic of Pseudoleucite in Alkaline Intrusive Rocks: Central Anatolia, Turkey
Deniz K & Kadioğlu YK

06d: The Geochemical and Geodynamic Implications of Melt and Fluid Flow in the Mantle Wedge

Session chaired by Taras Gerya & Marco Scambellurizx

14:00 **Keynote:** How Does the Slab Component get Across the Mantle Wedge?
Hermann J & Pirard C

14:30 Modes of Mantle Flow and He Travel in the Northern Lau Backarc Basin
Arculus R, Nebel O, Jenner F, Mavrogenes J & Dyriw N

14:45 Mantle Diapir or Mantle Wedge Plume of NW Rota-1 Volcano, Mariana Arc
Tamura Y, Ishizuka O, Stern R, Shukuno H, Kawabata H, Embley R, Hirahara Y, Chang Q, Kimura J, Tatsumi Y, Nunokawa A & Bloomer S

15:00 Pristine Mantle Xenoliths from the Active Bismarck Arc
McAlpine S & Arculus R

15:15 Metasomatic Pyroxenites and Peridotites in the Mantle Wedge: Tracing the High Nb/Ta Reservoir
Chen Y, Ye K, Guo S & Liu J

15:30 Melts Migrating through the Mantle Wedge: Evidences from Patagonian and Western Pacific Mantle Xenoliths
Melchiorre M, Faccini B, Coltorti M, Grégoire M, Bonadiman C & Benoit M

15:45 Focusing of Upward Fluid Migration due to Mineral Grain Size Variation
Wada I, Behn M, Parmentier M & Shaw A

16:00 Evidence of Slab Melt Transfer in the New Caledonian Fore-Arc Ophiolite
Pirard C, Hermann J & O'Neill H

16:15 Timing of Dehydration Melting and Fluid Flow during Continental Subduction-Zone Metamorphism in the Dabie Orogen
Chen R-X & Zheng Y-F

16:30 The Arrested HP Antigorite Dehydration Front from Cerro del Almirez (SE Spain)
Padrón-Navarta JA, López Sánchez-Vizcaíno V, Garrido CJ, Gómez-Pugnaire MT & Marchesi C

16:45 Serpentinite Channel and the Role of Serpentinite Buoyancy for Exhumation of High-Pressure Rocks (Voltri Massif, Western Alps)
Malatesta C, Gerya T, Scambelluri M, Federico L, Crispini L & Capponi G

08e: Current Challenges in Predicting Trace Metals Mobility in the Environment

Session chaired by Thorsten Schäfer, Christophe Tournassat & Thorsten Stumpf

14:00 **Keynote:** Ion Diffusion in Argillaceous Materials
Van Loon L

14:30 Metal Mobility in Clay Formations – From Batch Experiments with Mineral Suspensions to Column Setup with Compacted Clay
Kautenburger R, Moeser C & Beck HP

14:45 Sorption and Redox Behavior of Neptunium on Opalinus Clay and Callovo–Oxfordian Argillite
Banik NL, Marquardt C, Schild D, Rothe J & Schäfer T

15:00 LTD Phase I.: Long-Term Real-Scale Diffusion Experiment Results
Havlova V, Martin A, Eikenberg J & Sus F

15:15 Experimental Studies on Cesium Retardation on Brazilian Crystalline Rocks: Petrography, Porosity and Distribution Coefficients
Belline JB, Siitauri-Kauppi M, Kelokaski M, Gomes MEB & Formoso MLL

15:30 In-Diffusion of Some Chemical Species in a Weathered Granite
Park C-K, Baek M-H & Jeong J-T

15:45 Sorption of Lanthanide Ions to Mineral Surfaces Monitored by Luminescence Spectroscopy Techniques
Eidner S, Brennenstuhl K, Zilm-Gramckow S & Kumke M

16:00 Using TRLFS to Explain Increased Uptake of Eu(III) and Cm(III) into Biologically Produced Apatite
Holliday K, Handley-Sidhu S, Renshaw J, Macaskie L & Stumpf T

16:15 Adsorption of Thallium(I) onto Geological Materials: Effect of pH and Humic Matter
Liu J, Lippold H, Wang J, Lippmann-Pipke J & Chen Y-H

16:30 Selenide Retention by Mackinawite: A Multi-Edge XAS Approach
Finck N, Dardenne K & Bosbach D

16:45 Release Mechanisms of Sr and Cs from the Weathered Hanford Sediments
Um W & Chang H

09b: New Insights into Geochemical Monitoring of Volcanic Activity

Session chaired by Sandro Aiuppa & Burton Mike

15:30 **Keynote:** Erebus: A Laboratory Volcano in Antarctica
Oppenheimer C, Kyle P, Jones L, McIntosh W, Dunbar N, Ilanko T, Peters N, Moussallam Y, Iacovino K, Boichu M, Sawyer G, Tsanev V, Scaillet B, Pichavant M, Burgisser A, Alletti M & Molina I

16:00 **Invited:** 1998-2010 More Than Ten Year of Soil CO_2 Flux Measurement at Solfatara of Pozzuoli (Campi Flegrei, Italy)
Cardellini C, Chiodini G, Caliro S, Granieri D, Avino R & Frondini F

16:15 Airborne Measurements of Volcanic Particles and Gases with Small Aircrafts – Examples of Measurements in the Eyjafjallajökull Ash Plume over Germany and Iceland
Weber K, Eliasson J, Vogel A, Fischer C, Meier M, Grobety B & Dahmann D

16:30 Evolution of the LUSI Mud Volcano: Fluid Chemistry and Remote Sensing
Hartnett H, Vanderkluysen L & Clarke A

16:45 Interpreting CO_2 Measurements in Volcanic Gas Plumes: The Need for Integration with Geophysical Data
Aiuppa A

09e: Timescales of Magma Evolution, Degassing, and Ascent through the Crust

Session chaired by Heather Handley & Mark Reagan

14:00 Time Scales of Metasomatism, Differentiation and Degassing at Volcán de Colima
Reubi O, Sims KWW, Eikenberg J, Reagan M, Varley N & Bourdon B

14:15 **Keynote:** Do ^{226}Ra-^{230}Th Isochrons Provide Realistic Crystallization Ages?
Sims KWW, Pichat S, Reagan M, Kyle P, Dunbar N & Blichert-Toft J

14:30 Rejuvenation of an Old Magmatic System at Parinacota Volcano, Chile
Hora JM, Wörner G, Kronz A, Banaszak M, Singer BS & Johnson CM

14:45 Eruptive History and Chemical Evolution of the Acigöl Volcanic Field, Central Anatolia, Turkey, Based on Geochemical and Isotopic (Sr-Nd-Pb, $\delta^{18}O$) Constraints and Ion Microprobe Zircon Analysis
Siebel W, Schmitt A, Danisik M, Aydin F & Kiemele E

15:00 Short Magma Residence Times for Kilauea Volcano Based on High-Precision Pb Isotope Ratios
Heaton D, Pietruszka A, Garcia M & Marske J

15:15 Magma Degassing Timescales from Vesicle Size Distribution and Bubble Composition Heterogeneity in MORB Glasses
Colin A, Burnard P & Marty B

Session 09b follows this session in this room. For details see page 430.

11f: Natural and Synthetic Platinum-Group Minerals (PGM): Tracers of Processes at High and Low Temperatures – Sponsored by IMA COM and SGA

Session chaired by Oskar Thalhammer, Federica Zaccarini & Anna Vymazalova

14:00 **Keynote:** Low-Temperature Pt–Pd Mineralisation: Examples from Brazil
Cabral AR, Lehmann B & Brauns M

14:30 Mobility of Platinum and Gold in the Australian Regolith – Spectroscopic and Electron Microscopic Analyses
Reith F, Ta C, Etschmann B, Lenehan C & Brugger J

14:45 The Alteration Sequence of PGM in the Gossan of the Aguablanca Ni-Cu-(PGE) Sulphide Deposit, SW Iberia
Suárez S, Prichard H, Velasco F, Fisher P & McDonald I

15:00 Geochemistry and PGE Mineralogy of Chromitite Seams of the Eastern Bushveld Complex, South Africa
Tredoux M, Zaccarini F, Garuti G, Kottke-Levin J & Gauert C

15:15 Podiform Chromitites from the Turkish Ophiolites: An Overview to the Mineralogy of Platinum-Group Elements
Uysal I, Zaccarini F, Garuti G, Kaliwoda M, Hochleitner R, Akmaz RM & Saka S

15:30 PGE Reference Material Heterogeneity – Estimating Minimum Analytical Mass
Bedard LP, Esbensen KH & Barnes S-J

15:45 PGE Complexes at Superliquidus Temperature: Embryos for Platinum-Group Minerals?
Helmy H, Ballhaus C, Wohlgemuth-Ueberwasser C, Wirth R & Tredoux M

16:00 Experiments on the Wetting Properties of Precious Metal-Rich Sulfosalt Melts Against MSS
Tomkins A

16:15 Mineralogical Residence of Platinum Group Elements (PGE) in the Fe-Ni-Cu Sulfide Deposits of the Ivrea Verbano Zone (Italy)
Kollegger P, Zaccarini F, Garuti G & Thalhammer O

16:30 Formation of Platinum-Group Minerals from an Evolving Sulfide Liquid at Sudbury, Canada
Dare S, Barnes S-J, Prichard H & Fisher P

16:45 Correlation of $\delta^{13}C$ and PGE Contents in Magmatic Ores
Semenova D, Ponomarchuk V & Ryabov V

11g: The Rare Earth Elements: Their Deposits, Geochemistry, and Environmental Impact

Session chaired by Michael Bau, Ulrich Schwarz-Schampera & James R. Hein

14:00 REE in Fossil Biogenic Apatite
Herwartz D, Tütken T, Jochum K-P & Sander PM

14:15 Rare Earth Elements in Crude Oil
Nakada R, Takahashi Y, Zheng G, Kato S & Waseda A

14:30 Loparite Composition in Stratified Lovozero Alkaline Intrusion
Kogarko L, Lahaye Y & Williams T

14:45 REE Mineralization of High Grade REE-Ba-Sr and REE-Mo Deposits in Mongolia and China
Kynicky J, Xu C, Chakhmouradian A, Reguir K, Cihlarova H & Brtnicky M

15:00 Unusual U-REE Deposits at Mt Isa, Australia and Potential Links to Mid-Crustal Anorogenic Granites
McGloin M, Tomkins A & MacRae C

15:15 Mid and Heavy REE in Carbonatites at Lofdal, Namibia
Do Cabo V, Wall F, Sitnikova M, Ellmies R, Henjes-Kunst F, Gerdes A & Downes H

15:30 Potential REE Deposits along the Red Sea Coast of Egypt
Roberts J & Ibrahim T

15:45 Rare Earth Element Variation in Hydrothermal Fe-Oxide Cu-Au Systems
Schmidt Mumm A & Ciobanu C

16:00 Translocation and Fractionation of Rare Earth Elements in Intensely Weathered Lateritic Profiles in Western Australia
Du X, Rate A & Gee M

16:15 Rare Earth Elements (REE) Recovery as a By-Product of Fertilizer Production – Conceptual Evaluation
Simandl L, Simandl G & Fajber R

16:30 Comparison of Land-Based REE Ore Deposits with REE-Rich Marine Fe-Mn Crusts and Nodules
Hein J, Conrad T & Koschinsky A

16:45 REE Geochemistry, Mineralogy and Origin of Manganese Mineralization in the Derbent (Mahkeme Hill), Yozgat (Turkey)
Oksuz N, Karakus A & Yurteri C

12c: Chronologies and Rates of Climate Change

Session chaired by Edouard Bard & Dominik Fleitmann

14:00 Timing and Duration of Heinrich Events in the North Atlantic
McManus J

14:15 Bahamian Speleothems Reveal Increased Aridity Associated with Heinrich Events
Arienzo M, Swart P, Broad K, Clement A, Eisenhauer T & Kakuk B

14:30 Quantitative Reconstruction of Millennial-Scale Temperature Variations in Central Europe
Ménot G & Bard E

14:45 How Precisely can We Date Climate/ocean Instabilities of the Last Interglacial?
Hillaire-Marcel C

15:00 ^{230}Th Inventories in New Sediment Cores from the Eastern Equatorial Pacific: Constraints on the ^{230}Th Constant-Flux Proxy
Marcantonio F, Ibrahim R, Singh A & Lyle M

15:15 Speleothem Record of Permafrost in Siberia and Aridity in Mongolia during the Last 450 kyr
Vaks A, Gutareva O, Breitenbach S, Avirmed E, Kononov A, Osinzev A & Henderson G

15:30 Quaternary Soil and Climate Change Inferred from TL Dating of Quaternary Terraces in Taleghan Basin, Iran
Moeini A & Alizade Paeen Afrakaty E

15:45 **Keynote:** Chronology of Climate Archives – A Never-Ending Story
Kromer B

16:15 1500 yr Cyclicity during Mid-Holocene in the Eastern Mediterranean
Bar-Matthews M & Ayalon A

16:30 North Atlantic Influence on Rainfall in the Dead Sea – Sahel Watersheds: Implication for Holocene Climate Fluctuations
Stein M, Kushnir Y & Kagan E

16:45 Climatic Conditions during the Holocene Based on Levantine Continental Shelf Sediment Cores
Mor-Federman T, Bookman R, Almogi-Labin A & Herut B

13c: Air Quality and Climate: Bridging the Scales

Session chaired by Mian Chin & Lorraine Remer

14:00 **Keynote:** Aerosol-Cloud-Precipitation Interactions in the Climate System
Andreae MO

14:30 **Invited:** Which Emission Sector is Winning the Mitigation Competition When Direct, Indirect and Semi-Direct Effects are Investigated Separately?
Bauer S & Menon S

14:45 **Invited:** Assessing Impact of Aerosol Intercontinental Transport on Regional Air Quality and Climate: What Satellites can Help
Yu H

15:00 **Invited:** The Impact of Transported Pollution on Arctic Climate
Quinn P, Stohl A, Arneth A, Berntsen T, Burkhart J, Flanner M, Kupiainen K, Shepherd M, Shevchenko V, Skov H & Vestreng V

15:15 **Invited:** Temporal Trend in Anthropogenic Sulfur Aerosol Transport from Central and Eastern Europe to Israel
Karnieli A, Derimian Y, Indoitu R, Panov N, Levy R, Remer L, Maenhout W & Holben B

15:30 **Invited:** Effects of Future Climate Change on Air Quality over East Asia
Park R, Kim M, Jeong J & Song C-K

15:45 **Invited:** Air Quality over India: Weekly Periodicities and Long Term Trends
Satheesh SK, Moorthy KK, Babu SS, Srivastava N & Vinoj V

16:00 **Invited:** Estimating Ground Level PM2.5 Concentrations in Atlanta Metro Area Using Spatial Statistical Models
Liu Y, Hu X, Waller L, Al-Hamdan M, Crosson W, Estes M, Estes S & Quattrochi D

16:15 **Invited:** Observing the Diurnal Variability of Aerosol Optical Depth (AOD) from a Geostationary Satellite: Implications for Air Quality and Climate Monitoring
Kondragunta S, Ciren P, Xu C, Laszlo I & Zhang H

16:30 Aerosols, Chemistry and the Onset and Evolution of Fog Layers
Boers R

16:45 Optical Properties, Size Distribution and Composition of Aerosol Particles in the Urban Area of Sao Paulo
Artaxo P, Backman J, Rizzo L, Jorge F & Kulmala M

15i: Metal Stable Isotope Signals in Earth's Oceans and Seas

Session chaired by Thomas Bullen & Matthew Fantle

14:00 $\delta^{44/40}$Ca Variability in Modern Shallow Water Carbonates
Holmden C, Papanastassiou D, Blanchon P & Evans S

14:15 Unconstrained Fluxes to the Ocean: Calcium Isotopes in Dust-Producing Regions
Fantle M, Tollerud H, Eisenhauer A & Holmden C

14:30 Chromium Isotopes in the World's Oceans: Potential Tracers of Redox Environments
Amor K, Galer S, Andersson P & Porcelli D

14:45 Chromium Isotopes in Saanich Inlet Sediments and Waters
Scheiderich K, Holmden C & Francois R

15:00 Molybdenum Isotope Fractionation in Pelagic Euxinia: Evidence from the Modern Black and Baltic Seas
Nägler TF, Neubert N, Böttcher ME, Dellwig O & Schnetger B

15:15 Marine Mo Isotope Inventory: The Role of Igneous Rock Weathering
Voegelin AR, Nägler TF, Neubert N, Pettke T, Steinmann M & Pourret O

15:30 Causes and Consequences of Isotopically Heavy Dissolved Molybdenum in Rivers
Vance D, Keech A, Matthews A & Archer C

15:45 Abiotic and Biotic Control of the δ^{65}Cu and δ^{66}Zn Composition of Seawater
Little S, Vance D & Sherman D

16:00 Fe and S Isotope Compositions of Hydrothermal Sulfides from the Northern Lau Basin
Sreenivas B, Ray D, Paropkari AL, Mazumdar A, Vijaya Gopal B, Surya Prakash L, Balu G & Bhaskar Rao YJ

16:15 Fractionation of ^{238}U/^{235}U during Weathering and Hydrothermal Alteration
Noordmann J, Weyer S, Sharma M, Georg B, Rausch S & Bach W

16:30 Pb Concentrations, Stable Isotopes and ^{210}Pb in Seawater, Phytoplankton, Zooplankton, Sardines, Anchovy from the Gulf of Lion
Strady E, Veron A, Chiffoleau JF & Radakovitch O

16:45 Modelling Vertical Stable Isotope and Elemental Distributions in the Upper Ocean
Reynolds B & de Souza G

16b: Understanding the Fate and Transformations of Metal and Radionuclide Contaminants in Unsaturated and Saturated Subsurface Environments

Session chaired by Scott Brooks, Dawn Wellman, Henning Prommer & Ann Miracle

14:00 **Invited:** A Coupled Ion Exchange, Surface Complexation, Calcite Dissolution, and Mass Transfer Model to Describe Uranium(VI) Desorption and Reactive Transport at the Rifle (USA) Field Site
Davis J, Hay M, Fox P & Williams K

14:15 Residence Time Analysis of Metal-Desorption and Mineral-Dissolution Kinetics Using a Damkohler Approach
Bearup L, Navarre-Sitchler A, Maxwell R & McCray J

14:30 Fate of U(IV) during Microbially-Driven Mn(II) Oxidation in Sediments
Plathe K, Lee S-W, Lezama-Pacheco J, Tebo B, Bargar J & Bernier-Latmani R

14:45 $Cr(OH)_{3(s)}$ Oxidation Coupled with Heterogeneous Mn(II) Oxidation
Namgung S & Lee G

15:00 $Cr(OH)_{3(s)}$ Oxidation by Birnessite Under Common Groundwater pH Conditions
Lee Y & Lee G

15:15 Physical Versus Chemical Non-Equilibrium Model for Simulating U(VI) Adsorption
Greskowiak J, Hay M, Prommer H, Liu C, Post V, Ma R, Davis J, Zheng C & Zachara J

15:30 Mechanisms Controlling the Release, Transport and Attenuation of Mercury in Riverine Sediments
Ptacek C, Desrochers K, Gibson B, Liu P, Wang O, Tordiff J, Daugherty S, Blowes K, Van de Valk J, Lindsay M & Blowes D

15:45 Structural Incorporation of Selenium in Iron Sulfides
Diener A & Neumann T

16:00 Structural Incorporation of Uranium during the Fe(II)-Induced Transformation of Ferrihydrite
Lezama Pacheco JS, Massey MS, Michel FM, Bargar JR & Fendorf S

16:15 The Leaching of Arsenic and Heavy Metals from Pyrite Slags Depots in the Upper Banks Under Conditions of Highly Dynamic Groundwater-Surfacewater Interaction
Hartog N, van Gaans P, Vermeulen K-J & Jansen M

Session 16b continues overleaf...

16:30 Predicting the Fate of Radionuclides at the Hanford Tank Farm Using Analog Sediments
Perdrial N, Thompson A, Rivera N, Deng Y-T, O'Day P & Chorover J

16:45 Exploring Carbonate Aquifers and their Susceptibility for Metal Release during CO_2 Leakage
Wunsch A, Navarre-Sitchler A, Maxwell R & McCray J

17i: Linking "Omics" to Biogeochemical Fluxes

Session chaired by Peter Girgius, Jutta Niggemann & Thorsten Dittmar

14:00 Linking Geochemistry to Microbial Community Structure and Function in Sulfidic Geothermal Systems of Yellowstone National Park
Jay Z, Planer-Friedrich B, Rusch D & Inskeep W

14:15 Insights into Marine Microbial Communities that Couple Anaerobic Biogeochemical Cycles to Remote Oxidants
Girguis P, Song P & Nielsen M

14:30 Controls on Microbes in an Actively Venting Chimney and in Low-Temperature Hydrothermal Fluids
Perner M & LaRoche J

14:45 Enzymatic Extracellular Superoxide in Microbial Mn(II) Oxidation
Learman D & Hansel C

15:00 Sulfate Reduction in Peatlands – Ecophysiology of a Rare Microorganism that Contributes to a Process with Increasing Importance for the Global Climate
Pester M, Hausmann B, Deevong P, Wagner M & Loy A

15:15 Coupling Isotope Labelling with Compound Specific Stable Isotope Analysis of Microbial Biomarkers
Dippold M, Apostel C, Sauheitl L, Glaser B & Kuzyakov Y

15:30 "Geo-Metabolomics" – A Key for Understanding Function and Reactivity of Dissolved Organic Matter
Niggemann J, Gerdts G & Dittmar T

15:45 Comparison of Internal and External Metabolites Produced by a Diatom
Kujawinski E, Kido Soule M & Longnecker K

16:00 Compositional and Structural Dynamics of Dissolved Organic Matter in Taihu Lake, China
Hertkorn N, Zhang F, Schmitt-Kopplin P, Fekete A, Gaspar A, Wu Y & Zhang J

16:15 Assessing the Role of Microorganisms in Biogeochemical Processes by Protein Immunodetection Using nanoSIMS
Milucka J, Polerecky L, Lieberwirth I, Schüler M, Keil T, Vagner T, Widdel F & Kuypers M

16:30 Isotopic Analysis of Microarrays to Link Microbial Identity and Function
Mayali X, Weber PK, Brodie EL, Mabery S, Hoeprich PD & Pett-Ridge J

17j: Biogeochemical Processes in Redox-Dominated Environments: From Cold Seeps to Soils

Session chaired by Gert De Lange, Céline Pallud, Christian Hensen & Anniet Laverman

14:00 **Keynote:** Urban Dead Seas: Natural and Anthropogenic Influences on Redox-Stratified Lakes and Wetlands
Koretsky C

14:30 Sub-Micromolar Oxygen Dynamics at Redox Boundaries of Lakes
Kirf M, Schubert C & Wehrli B

14:45 Redox Front Variability and Phosphorus Flux Across the Sediment-Water Interface
Druschel G, Smith L, Shufelt N, Watzin M, Pearce A & Rizzo D

15:00 Potential Rates of Denitrification Linked to Iron and Sulfur Oxidation in Aquatic Sediments
Laverman A, Yan C, Viollier E, Deflandre B, GeorgeOna-Nguema G & Pallud C

15:15 Environmental Controls on Potential Nitrate and Sulfate Reduction Rates in a Range of Aquatic Sediments
Pallud C, Laverman A, Gu C & Van Cappellen P

15:30 Redox Dynamics Resulting from Chemical and Physical Fluxes in Surficial Permeable Sediments
Glazer B, Fram J, Murphy J, Fogaren K & Sansone F

15:45 Geochemistry of Cold Seeps – Fluid Sources and Systematics
Hensen C, Scholz F, Reitz A, Liebetrau V, Haeckel M, Schmidt M, Wallmann K & Romer RL

16:00 Mechanics of Bacterial Sulfate Reduction Deduced from Sulfur and Oxygen Isotopes in Pore Fluid Sulfate
Antler G, Turchyn AV, Rennie V, Herut B & Sivan O

16:15 A Multi-Component Reactive Transport Model Assessment of Microbial Processes and Trace Metal Cycling Across a Gradient in Sulfate Reduction Rates along the California Margin
Schneider Mor A, Steefel C & Maher K

16:30 Subsurface Biogeochemistry of Hydrothermal Flow at the Hook Ridge, Bransfield Strait
Hepburn L, Mills R, Aquilina A, Copley J, Glover A & Tyler P

19h: High Pressure Behavior from Impacts to Interiors

Session chaired by Nico de Koker & Kanani Lee

14:00 **Keynote:** Helium Rain and Core Erosion in Gas Giant Planets
Militzer B

14:30 Ferrous Iron Diffusion in Ferro-Periclase Across the Spin Transition – A DFT Study
Ammann M, Brodholt J & Dobson D

14:45 Multimegabar Phase Relations of Major Earth and Planetary Materials
Tsuchiya T, Dekura H, Metsue A & Kuwayama Y

15:00 The Composition of the Earth's Outer Core from First Principles
Côté A, Brodholt J & Badro J

Session 19i follows this session in this room. For details see page 442.

19i: New Developments For The Analysis of Core-Level Spectroscopies

Session chaired by Paul Bagus & Eugene Ilton

15:15 **Keynote:** Oxide Surfaces: Geometric and Electronic Structure
Freund H

15:45 **Invited:** An Experimentalist Call to Theoreticians About XANES Spectra Theoretical Simulation at the C K-Edge, Ca and Fe L2,3 Edges
Benzerara K, Beyssac O, Galvez M, Bernard S & Cosmidis J

16:00 **Invited:** Covalency in the Actinides Probed with Ligand K-Edge X-Ray Absorption Spectroscopy
Martin RL & Batista ER

16:15 **Invited:** Speciation and Dynamics of Biologically Reduced U(IV) in the Old Rifle, CO Aquifer
Bargar J, Stubbs J, Suvorova E, Williams K, Campbell K, Lezama-Pacheco J, Cerrato J, Stylo M, Alessi D, Webb S, Bernier-Latmani R, Giammar D, Davis J, Fox P & Long P

16:30 **Invited:** Using Ambient Pressure X-Ray Photoelectron Spectroscopy to Investigate the Reduction of c(2x2)-O/Ni(100) by Hydrogen
Mueller K, Shavorskiy A, Bluhm H & Starr D

16:45 Many-Body Effects in XPS and Chemical Bonding
Bagus P, Nelin C, Freund H-J & Ilton E

20f: Melts and Glasses: From Deep Earth Interiors over Environmental Applications to Volcanological and Geophysical Challenges

Session chaired by Roberto Moretti & Daniel Neuville

14:45 **Keynote:** *In situ*, High-Pressure/-Temperature Experimental Determination of Structure-Property Relations in Silicate Melt-C-O-H-N Systems
Mysen B

15:00 The Influence of Melt Structure on the Partitioning of Trace Elements
Simon S, Wilke M, Klemme S, Caliebe WA & Kvashnina KO

15:15 Evidence of Fe-Oxide Clusters in Obsidians
Galoisy L, Calas G & Menguy N

15:30 Effect of Alkali Content and Fe Oxidation State on the S Oxidation State and Solubility in Rhyolitic Glasses
Giuli G, Paris E, Mori R, Glatzel P, Cicconi MR, Scaillet B & Eeckhout S

15:45 Effect of Helium on Structure of SiO_2 Glass Probed by Raman Spectroscopy
Shen G & Lazor P

16:00 Molecular Scale Origin of Nuclear Waste Glass Properties
Calas G, Cormier L, Delaye J-M, Galoisy L, Jollivet P & Peuget S

16:15 Structure of CaO-Al_2O_3-SiO_2 Melts Studied by Molecular Dynamics and Diffraction Experiments
Jahn S, Haigis V, Drewitt J, Kozaily J, Bytchkov A & Hennet L

16:30 An Example of Fluid Immiscibility during the Subvolcanic Emplacement of a Boron-Rich Acidic Melt: The Capo Bianco Aplite (Elba Island, Italy)
Dini A

16:45 The Influence of F, P and B Content on Pegmatitic Melt Viscosity
Bartels A, Knipping J, Behrens H, Holtz F & Schmidt B

20j: Structure, Elasticity and Thermodynamics of Minerals

Session chaired by Michael A. Carpenter, Tiziana Boffa Ballaran & Alan Woodland

14:00 Structural Systematics of Mg-Fe^{2+}-bearing Spinels and Spinelloids
Woodland A, Angel R & Koch M

14:15 The Crystal Chemistry of (As,Sb,Bi)-bearing Dumortierite
Groat L, Evans J, Grew E & Pieczka A

14:30 The Effect of Pressure on Tetrahdral Tilting in Feldspars
Sochalski-Kolbus L & Angel R

Session 20f follows this session in this room. For details see page 443.

22a: General Low-Temperature Geochemistry

Session chaired by Leona Zemanova

14:30 The Interaction between Central and South America from Sr-Isotope Chemostratigrpahy of Cenozoic Coral Reef Sucessions
Silva Tamayo JC, Montes C, Cardona A, Jaramillo C, Bayona G, Ramirez V, Nino H, Ducea M, Sial A & Zapata V

14:45 Mineralogical and Chemical Variations in Kaolin and Alunite Deposits in Vicinity of the Aksaray Region (Central Anatolia, Turkey)
Karakaya N & Çelik Karakaya M

15:00 Geochemistry of Cheshmeh Sefid Manganese Deposit, Sabzevar, Khorasan Province, Iran
Moghaddasi SJ & Ghanbari M

15:15 Palaeotemperature Estimation by Tandem $\delta^{18}O$ Measurement of Calcium Carbonate and Gypsum Hydration Water
Hodell D, Turchyn A & Wiseman C

15:30 Fluid Inclusions in Stalagmites Used as a Quantitative Thermometer in Paleoclimate Research
Krüger Y, Marti D, Hidalgo Staub R, Fleitmann D & Frenz M

15:45 Stable Isotope Constraints on Fluid Flow in the Cascadia Accretionary Prism: Evidence for Large Flow Transients during Recent Deformation
Sample J & Tripati A

16:00 Fluoride Removal from Solution by Calcite — pCO_2 Sorption Kinetics
Turner B, Sleap S, Krabbenhoft K & Sloan S

16:15 A Novel Application of (U-Th)/He Geochronology to Constrain the Age of Small, Young Meteorite Impact Craters: A Case Study of Monturaqui Crater, Chile
Ukstins Peate I, van Soest M & Wartho J-A

16:30 Marcasite in Clastic Sediments – Formative Processes and Deep Time Stability
Schieber J & Cheshire M

16:45 Assessing Cementation in the El Capitan Reef Complex and Lincolnshire Limestone Using ^{13}C-^{18}O Bond Abundances in Carbonates
Loyd S, Dickson T, Hudson J, EIler J & Tripati A

22d: Isotope Archaeometry

Session chaired by Ernst Pernicka, Thilo Rehren & Bernd Lehmann

14:00 Provenance Study of Swahili Metals Using Lead Isotopic Analysis
Fenn T, Killick D & Ruiz J

14:15 Marine and Terrestrial Palaeoclimate Proxies from the Stable Isotope Analysis of North African Molluscs
Prendergast A, Stevens R, O'Connell T, Hunt C & Barker G

Session 22a follows this session in this room. For details see page 445.