Goldschmidt 2000

An International Conference for Geochemistry

PROGRAMME

3rd – 8th September 2000
Oxford, UK

Sponsored by
The European Association for Geochemistry
The Geochemical Society

Managed and Administered by
Cambridge Publications Limited

Goldschmidt 2000

WELCOME

Approximately 1000 delegates have registered for Goldschmidt 2000, of which 200 are students. The Organising Committee is especially grateful to the Geochemical Society for making a large number of valuable travel grants available to students from all over the world to enable them to participate in this conference. It is also pleasing to see so many equipment manufacturers and publishers who have mounted exhibitions at the conference. We hope that delegates will find these exhibitions an interesting opportunity to see how technological change and the dissemination of results support the advance of the subject. Their presence has helped keep registration fees to a minimum, and for this we are very grateful. The large number of delegates and exhibitors is certainly gratifying for us, the organisers, but are also an important expression of the health of geochemistry and the Goldschmidt conferences.

Each Goldschmidt Conference has been organised locally, and taken on a local character and flavour. With a remarkable lack of foresight, the city planners in the twelfth century failed to make provision for large numbers of lecture theatres on a single site, or for the possibility that cars might one day wish to move through the city. In allocating the submitted papers to oral or poster presentation, we have sought to ensure that as many delegates as possible have been allocated the style of presentation they prefer. For this reason almost all the lecture theatres on this University site have been booked for the conference. Symposia on related topics have been located as close to each other as possible, and we hope that the wide choice of speakers at any one time will more than compensate for the walk required between some of these symposia. Oxford is an ancient city and the UK's oldest University. We very much hope that Oxford with its historic and ancient trappings proves popular with you all. With a combination of history, architecture, local pubs and its proximity to London and Stratford it should hold something for everyone.

We are grateful to Cambridge Publications for taking over the management of the meeting from the planning stage through to the post-conference clean-up in addition to producing the conference publications. Organising a large international conference in Oxford presents a range of challenges: we are pleased to say that Cambridge Publications have found efficient and creative solutions to most of these. They have provided the technical backbone for the conference, carried almost all the administrative load and ensured that the costs to delegates have been kept to a minimum, while making the most of the available opportunities to make the conference enjoyable and productive. We would recommend their services to others faced with the opportunity and responsibility of organising an academic conference.

We believe that the scientific committee and symposium convenors have performed a marvellous job in producing exciting symposia. No conference is better than its participants and the themes presented. In that regard we believe we are due an exceptionally good time at Oxford.

Max Coleman
Chris Hawkesworth
Keith O'Nions

Organising Committee
Goldschmidt 2000

Goldschmidt 2000

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INFORMATION FOR DELEGATES

Registration

The information, pre-registration and on-site registration desks are located on the ground floor of the Department of Zoology (South Parks Road, Oxford). The conference desks will be open on Sunday 3rd September between 2 pm and 6 pm and on Monday, Tuesday and Thursday September 4th, 5th and 7th at 8:45 am - 12 pm and 2 pm - 6 pm, and on Friday September 8th between 8:45 am and 12 pm. Everyone attending the conference must register and pay the appropriate fees prior to attending any of the academic sessions.

Participants and accompanying persons who have pre-registered and completely paid their fees will be able to collect their conference material on arrival at the Pre-Registration desks. Participants who register on-site must complete the Goldschmidt 2000 On-Site Registration Form and are required to pay the corresponding fees at the Cashier desk.

Name Badges

The name badge is evidence of payment of Goldschmidt 2000 registration fees and must be worn when attending the meeting. Please register in good time before your session starts; you need your Goldschmidt 2000 badge to enter the conference rooms. Name badges will also be required if you wish to enter the Colleges providing accommodation for delegates.

Grants to Students and Invited Speakers

Participants who have been awarded a travel grant will find their cheques enclosed in their registration envelopes. Any delegate wishing to obtain cash instead of a cheque should enquire at the information desk. The cheques will be able to be cashed within 24 hours.

Computing Facilities and Message Centre

Arrangements have been made with the Departments of Earth Sciences and Zoology to enable Goldschmidt 2000 delegates to use their computing facilities to read the Abstracts CD or to access e-mail. Telnet and web browsing software will be supplied. The Message Centre, is located adjacent to the Conference Desk on the ground floor of the Department of Zoology, South Parks Road and is open during the scientific sessions of the conference.

Exhibitions

The exhibition areas are located in the Oxford University Museum in the ground floor seminar room and on the upper Gallery. These will be open between 9 am and 4 pm on Monday, Tuesday and Thursday, and between 9 am and 12 pm on Friday.

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SCIENTIFIC PRESENTATIONS

Lecture rooms

Nine lecture theatres will be used for Goldschmidt 2000, in order to accommodate the large number of requests that have been received for oral presentations. These lecture theatres are the closest set of lecture theatres available in Oxford, and are all located in the Parks Road -South Parks Road science area of Oxford University. The symposia of similar themes have been allocated adjacent lecture theatres to minimise the time required to move between presentations.

As a general rule, 15 minutes (including discussion time) are allocated for each oral presentation. There are two overhead and two slide projectors and two screens in each lecture room. Speakers should prepare their slides to withstand the heat from the projector, add their name, a sequence number and a thumb mark and should deliver them to the projectionist at least 15 minutes before the session starts. Speakers can pre-view their slides in the lower laboratory, Department of Earth Sciences.

Poster Sessions

Material for poster presentations should be arranged for a space not larger than 100 cm wide and 100 cm high. Poster presentations are scheduled Monday, Tuesday and Thursday between 4 pm and 6 pm. The poster presentations follow the oral presentations for a given symposium. Refreshments will be provided.

The poster should be fixed on the appropriate panel between 10 am and 3:30 pm on the day on which they have been scheduled: it should be removed from the panel before 10 am of the following day. Material to fix the posters on the panel is available at the Conference desk located in the Department of Zoology.

The Plenary Session

The Medals of the European Association for Geochemistry and the Geochemical Society will be presented in the Plenary Session on Wednesday September 6th from 9 am. This will also be the occasion on which the new Fellows of the societies will be inducted, and the presentations of the Patterson and Goldschmidt medallists and the Gast lecturer will be made. The Plenary Session will take place in the Odeon Cinema, Magdalen Street, which is located between the South Parks Road lecture theatres and the centre of the city (see map, page 12). Refreshments will be available.

Abstracts

The abstracts are published as part of the Journal of Conference Abstracts on the accompanying CD. The page numbers given in the index at page 71 refer to the page numbers on the CD and on the Journal's website, which may be found at:

http://www.campublic.co.uk/science/publications/

Further copies of the CD, or any other issue of this Journal, may be purchased from Cambridge Publications at the address shown on the cover of this programme.

REFRESHMENTS AND SOCIAL EVENTS

The Cambridge Publications Wine Party

This Ice-breaker Party will take place at 4 pm on Sunday September 3rd in the Department of Zoology, South Parks Road, and on the University Sports Field, if the weather is fine. Wine will be provided by Cambridge Publications Limited. All registered participants are cordially invited to attend.

Refreshments

Coffee is available in the Department of Zoology, in the Gallery of the Oxford University Museum and adjacent to the Martin Wood lecture theatre of the Clarendon Laboratory during the morning and afternoon scientific sessions. Refreshments will also be served in the Department of Zoology during the poster sessions.

Lunches

Delegates who have booked lunches at Keble should be seated in the Hall at Keble by 12:30 pm each day. Other delegates may purchase packed lunches (£3.50) in the Gallery of the Oxford University Museum from 12:00 to 1:30 pm on Monday, Tuesday and Thursday. Lunches may be consumed in the Museum Gallery, but not on its ground floor.

Excursion to Stratford-upon-Avon

Delegates who have booked places on the excursion to see Shakespeare's "As you like it" in Stratford-upon-Avon will find their tickets in their registration envelopes. Further tickets for the performance may be available from the Conference Desk, subject to availability Further information for participants will be included with their tickets which will be distributed on registration.

Conference Banquet

The Conference Banquet will take place at 7 for 7:30 pm in the Hall of Keble College. Delegates are welcome to assemble beforehand in the Quads of Keble College if the weather is fine but should be seated by 7:25 pm. Delegates will need to show their banquet ticket which they will have received in their conference pack.

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EXHIBITORS AT GOLDSCHMIDT 2000

**The Organising Committee wishes to thank
the following organisations for providing exhibits for Goldschmidt delegates,
and for their support of the conference.**

Blackwell Science Ltd

CETAC Technologies

Densitest

Elsevier Science

Finnigan Mat GmbH

Geological Society Publishing House

Micromass

The Mineralogical Society

New Wave Research Inc

Nu Instruments Ltd

Oxford University Press

Pico Trace GmbH

Renishaw Plc

The Royal Society for Chemistry

Springer-Verlag GmbH

TJA Solutions

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ORGANISING COMMITTEE

Max Coleman
Chris Hawkesworth
Keith O'Nions

SCIENTIFIC COMMITTEE

Adrian Bath
Paul Beattie
Max Coleman
Matthew Collins
Tony Fallick
Don Fraser
Nigel Harris
Chris Hawkesworth
Paul Henderson
Rachel Mills
Keith O'Nions
Bernie Wood

SYMPOSIUM CONVENORS

Edouard Bard
Adrian Bath
Mike Bickle
Jon Blundy
John Brodholt
Matthew Collins
Tim Elliott
Alex Halliday
Nigel Harris
Erik Hauri
Chris Hawkesworth
George Helffrich
Gideon Henderson
Marian Holness
Niels Hovius
Bill Jenkins
Derek Lovely
Frank McDermott
Andrew Putnis
Vala Ragnarsdottir
Rob Raiswell
Keith Refson
Dave Rubie
Mike Russell
Terry Seward
Barbara Sherwood-Lollar
Everett Shock
Mike Summerfield
Bernie Wood
Ed Young

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FELLOWS

New Fellows of the European Association for Geochemistry and the Geochemical Society

Harry Elderfield
(University of Cambridge)

Gunter Faure
(Ohio State University)

Fred Frey
(Massachusetts Institute of Technology)

Gil Hanson
(SUNY, Stony Brook)

Frank Millero
(University of Miami)

Francois Morel
(Princeton University)

Minoru Ozima
(University of. Tokyo)

Doug Rumble
(Geophysical Laboratory, Washington DC)

Terry Seward
(ETH, Zürich)

Alan Zindler
(Florida State University)

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SYMPOSIA

A **Terrestrial Planets and Meteorites**
Alex Halliday & Ed Young

B **Chemistry and Dynamics of the Earth**
Bernie Wood & George Helffrich

C **Subduction Zone Processes**
Jon Blundy, Chris Hawkesworth & Dave Rubie

D **Rapid Climate Change (Continents/Oceans)**
Edouard Bard & Frank McDermott

E **Biological Geochemistry**
Derek Lovely, Rob Raiswell & Matthew Collins

F **Ocean Circulation: Past and Present**
Bill Jenkins & Gideon Henderson

G **Flow and Reaction of Fluids in Crust**
Marion Holness & Terry Seward

H **Weathering and Erosion: Mechanisms and Rate**
Mike Bickle, Niels Hovius & Mike Summerfield

I **Mineral Surfaces and Reactions**
Vala Ragnarsdottir & Andrew Putnis

J **Mantle Dynamics and Melting**
Erik Hauri & Tim Elliott

K **Life in Extreme Environments**
Mike Russell & Everett Shock

L **Computational Geochemistry**
Keith Refson & John Brodholt

M **Chemistry and Microbiology of Pollution**
Adrian Bath & Barbara Sherwood-Lollar

N **Low Temperature and Metamorphic Geochemistry and Geochronology**
Nigel Harris

O **Open Session**
Nigel Harris

P **Plenary Session**

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MEDALLISTS AND LECTURERS

Houterman Medal (1999)

Gleb Pokrovski
Citation by Vala Ragnarsdottir
Lecture given in Symposium G: [G(Tu:am:06)ZA]

Houterman Medal (2000)

Erik Hauri
Citation by Al Hofmann
Lecture given in Symposium J: [J(Mo:am:01)CM]

F. W. Clarke Medal

James Farquhar
Citation by Mark Thiemans
Lecture given in Symposium A: [A(Tu:pm:27)CL]

Gast Lecturer

Jillian Banfield
Introduction by Mike Hochella
Lecture given in Plenary Session: [P(We:am:02)AB]

C. S. Patterson Medal

Edward A Boyle
Citation by Harry Elderfield
Lecture given in Plenary Session: [P(We:am:01)AB]

V. M. Goldschmidt Medal

Geoffrey Eglinton
Citation by Edouard Bard
Lecture given in Plenary Session: [P(We:am:03)AB]

Urey Medal

Donald DePaolo

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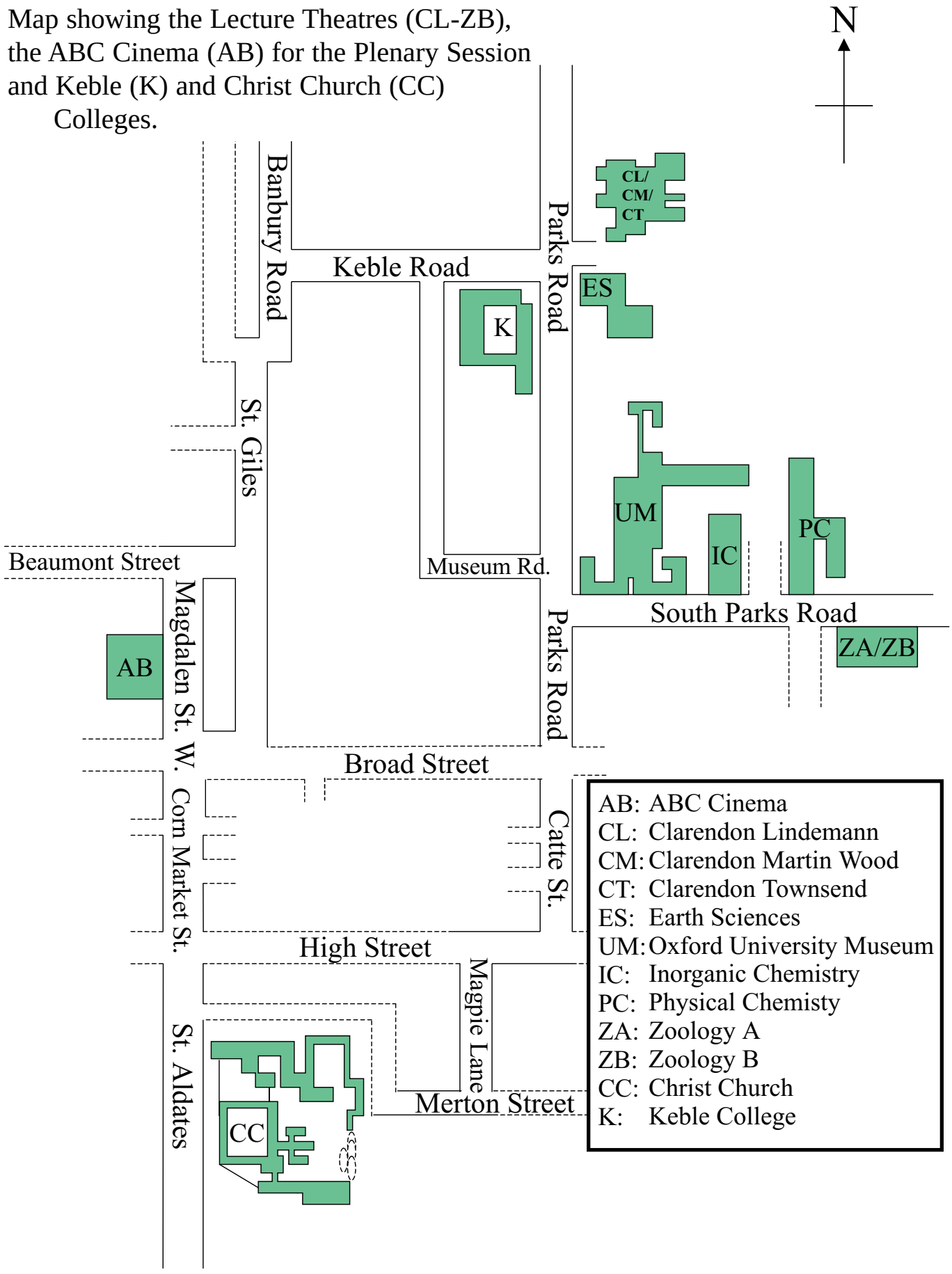
CENTRAL OXFORD (NORTH)

Map showing the Lecture Theatres (CL-ZB), the ABC Cinema (AB) for the Plenary Session and Keble (K) and Christ Church (CC) Colleges.



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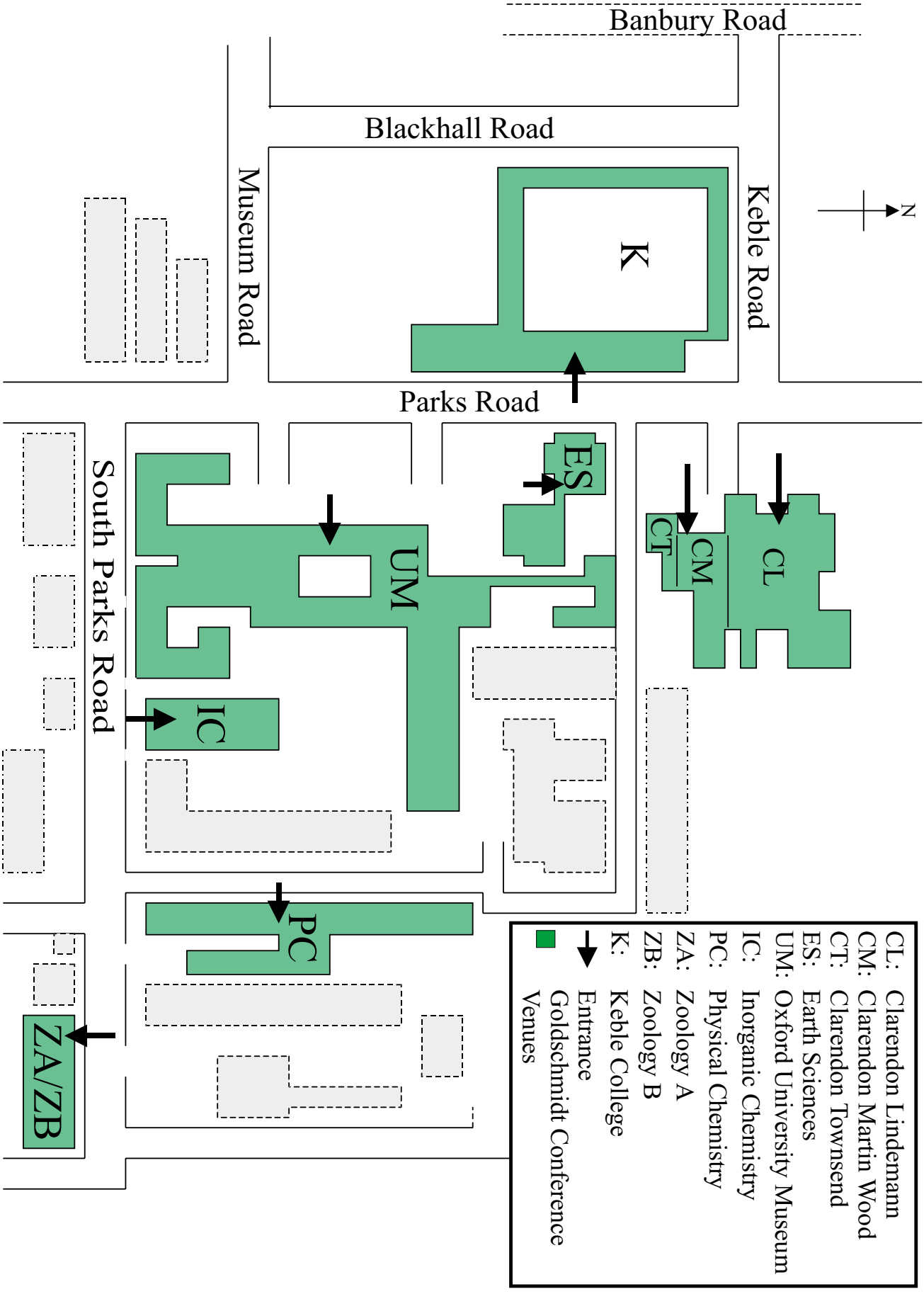
LECTURE THEATRES



ORAL AND POSTER SESSIONS

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CONFERENCE STRUCTURE

Lecture Theatre		Monday			Tuesday			Wednesday			Thursday			Friday		
		am	pm	PO	am	pm	PO	am	pm	PO	am	pm	PO	am	pm	PO
ABC Cinema	AB							**P**								
Clarendon Lindemann	CL	**A**	**A**	**A**	**A**	**A**					**A**	**A**	**A**	**A**		
Clarendon Martin Wood	CM	**J**	**J**		**J**	**J**					**J**	**J**		**J**		
Clarendon Townsend	CT	**C**	**C**	**C**	**C**	**C**										
Earth Sciences	ES	**K**	**K**	**K**	**M**	**M**	**M**				**M**	**M**				
Oxford University Museum	UM	**E**	**E**		**E**	**E**					**E**	**E**	**E**	**E**		
Inorganic Chemistry	IC	**O**	**O**	**O**	**O**		**O**				**O**	**O**	**O**	**O**		
Physical Chemistry	PC	**D**	**D**		**D**	**D**	**D**				**F**	**F**	**F**	**F**		
Zoology A	ZA	**G**	**G**	**G**	**G**	**G**					**I**	**I**	**I**	**I**		
Zoology B+C	ZB	**L**	**H**	**L**	**H**	**H**	**H**				**N**	**N**	**N**	**N**		

Single Letter Codes Refer to Symposia:

P **Plenary Session**

A **Terrestrial Planets and Meteorites**
B **Chemistry and Dynamics of the Earth**
C **Subduction Zone Processes**
D **Rapid Climate Change (Continents/Oceans)**
E **Biological Geochemistry**
F **Ocean Circulation: Past and Present**
G **Flow and Reaction of Fluids in Crust**
H **Weathering and Erosion: Mechanisms and Rate**
I **Mineral Surfaces and Reactions**
J **Mantle Dynamics and Melting**
K **Life in Extreme Environments**
L **Computational Geochemistry**
M **Chemistry and Microbiology of Pollution**
N **Low Temperature and Metamorphic Geochemistry and Geochronology**
O **Open Session**

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PLENARY SESSION

Wednesday September 6th

Odeon Cinema, Magdalen Street, Oxford.

09:00 **The Award of the F. W. Clarke Medal to James Farquhar**
(Citation: Mark Thiemens)

The Award of the C. S. Patterson Medal to Edward A Boyle
(Citation: Harry Elderfield)

The C. S. Patterson Lecture
The evolution of Anthropogenic Lead in the Ocean

10:00 **The Gast Lecture: Jillian Banfield**
Biomineralization and Geochemical Cycling in Subsurface Solutions: An Example

10:30 **Break**

11:00 **Induction of the New EAG and GS Fellows**

The Award of the 1999 Houterman Award to Gleb Pokrovski
(Citation: Vala Ragnarsdottir)

The Award of the 2000 Houterman Award to Erik Hauri
(Citation: Al Hofmann)

Announcement of the Award of the Urey Medal to Donald DePaolo

11:30 **The Award of the V.M. Goldschmidt Medal to Geoffrey Eglinton**
(Citation: Edouard Bard)

The V. M. Goldschmidt Lecture
Biomarker Molecules

Symposium A
Terrestrial Planets and Meteorites

Convenors: Alex Halliday & Ed Young.
Location: Clarendon Lindemann.

09:00 **Osmaston M:**
A new Scenario for Forming the Solar Planetary System; Dynamics, Cores and Chemistry

09:15 **Yin Q & Jacobsen S:**
Supernova Isotopic Signatures in Carbonaceous Chondrites: Implications for CHUR Parameters

09:30 **McKeegan KD, Chaussidon M & Robert F:**
Lived ^{10}Be in a Refractory Inclusion from the Allende Meteorite: A Case for Intense Irradiation of the Protosolar Nebula?

09:45 **Leya I, Wieler R & Halliday AN:**
The Influence of Cosmic Ray Production on Extinct Nuclide Systems

10:00 **Münker C, Weyer S, Mezger K, Rehkämper M, Wombacher F & Bischoff A:**
^{92}Nb-^{92}Zr in the Early Solar System

10:15 **Sanloup C, Blichert-Toft J, Télouk P, Gillet P & Albarède F:**
Evidence for Extinct ^{92}Nb Radioactivity in Chondrites and SNC Meteorites

10:30 **Dauphas N, Marty B & Reisberg L:**
In Search of Live ^{97}Tc in the Early Solar System

10:45 **Henkel T, Stephan T, Jessberger EK, Hoppe P & Strebel R:**
TOF-SIMS Analysis of Presolar SiC X-grains

11:00 **Verchovsky A, Wright I, Fisenko A, Semjonova L & Pillinger C:**
Ion Implantation into Presolar Diamonds: Experimental Simulation

11:15 **Whitby J, Turner G, Russell S & Gilmour J:**
I-Xe Dating of CAI's and Chondrules from CV3 Meteorites

11:30 **Miller MF, Franchi IA & Pillinger CT:**
A New Source of Mass Independent Fractionation of Oxygen Isotopes: Evidence and Geochemical Implications

11:45 **Galy A & O'Nions RK:**
Is There a CHUR for Mg?

(Symposium A Continued in Session Mo:pm on Page 23)

Symposium C
Subduction Zone Processes

Convenors: Jon Blundy, Chris Hawkesworth & Dave Rubie.
Location: Clarendon Townsend.

09:00 **Revillon S, Barr S, Brewer T, Harvey P, Tarney J & Leg 185 Shipboard Scientific Party:**
The Importance of Core-log Integration in Calculations of Element Budgets; Mariana Subduction Factory, ODP Leg 185, Site 801C

09:15 **Ishizuka O, Nesbitt RW, Taylor RN, Yuasa M, Uto K & Hochstaedter AG:**
Spatial and Temporal Variation of Back-arc Volcanism in the Izu-Bonin Arc – Chemical Variation in Relation to Volcano-tectonic History

09:30 **Morris J & Tera F:**
Beryllium Isotope Systematics of Volcanic Arc Cross-chains

09:45 **Kempton PD, Pearce JA & Tappin D:**
Hf Isotope Evidence for Mantle Domain Boundaries in the Western Pacific

10:00 **Dosseto A & Bourdon B:**
^{238}U-^{234}U-^{230}Th-^{226}Ra and ^{235}U-^{231}Pa Radioactive Disequilibria in Volcanic Rocks from Kamchatka, Russia

10:15 **Macpherson C, Forde E, Hall R & Thirlwall M:**
Spatial and Temporal Evolution of Magmatism in an Arc -Arc Collision: The Halmahera and Sangihe Arcs, Eastern Indonesia

10:30 **Brueckner HK:**
Geochemistry and Age Patterns of Garnet Peridotite in Subducted Continental Crust

10:45 **Discussion:**

11:00 **Davies JH:**
KEYNOTE Thermal Structure, Water Transport, and Melt Propagation at Subduction Zones

11:30 **Bourdon B, Turner S & Allègre C:**
^{231}Pa-^{235}U Systematics and the Time Scales of Melting Processes beneath the Tonga-Kermadec Arcs

11:45 **Asmerom Y, Mukasa S, Cheng H & Edwards RL:**
Pa-Th-U Constraints on Melting and Material Recycling in Subduction Zones: A Case Study of the Philippine Arcs

(Symposium C Continued in Session Mo:pm on Page 23)

Symposium D
Rapid Climate Change (Continents/Oceans)

Convenors: Edouard Bard & Frank McDermott.
Location: Physical Chemistry.

09:00 **Sharma M:**
Long-term Variations in Solar Magnetic Activity: Is There a Sun-Climate Connection?

09:15 **Ihlenfeld C, Webb J, Maas R & Drysdale R:**
The Record of El Niño Events in Terrestrial Carbonates: Preliminary Results of a High-resolution Isotope and Trace Element Study

09:30 **Tamburini F, Adatte T, Steinmann P & Föllmi K:**
Phosphorus Geochemistry of Marine Records: Examples from Diverse Oceanographic Settings

09:45 **Kaljo D & Martma T:**
Carbon Isotopic Test of Silurian Oceanic Episodes

10:00 **Pomies C & Davies G:**
Neodymium Isotopes in Modern Foraminifera from Indian Ocean: Assessment of the Use of Nd Isotope Composition of Foraminifera as a Tracer for Palaeo-oceanic Circulation Changes

10:15 **Brassell S & Wang R:**
Molecular Signals of Climatic Change Over the Last 30,000 Years in Zabuye Salt Lake Sediments, Tibet

10:30 **Nagler TF & Eisenhauer A:**
δ^{44}Ca-Temperature Calibration on Fossil and Cultured *G. sacculifer*: A new Proxy for the Reconstruction of Palaeo Sea Surface Temperature (SST) Fluctuations

10:45 **Vlastélic I, Abouchami W, Galer S, Claude-Ivanaj C & Hofmann A:**
The Distribution of Lead Isotopes in the Indian Ocean

11:00 **Sarma VVSS, Bard E & Hamelin B:**
Evidence for Diagenetic Re-distribution of Uranium in the Equatorial Arabian Sea

11:15 **Cohen A & Coe A:**
An Ultra-high Resolution Record of Miocene Climate Change: The Organic-rich Mudrock Successions of the Monterey Formation, California

11:30 **Huang Y, McDermott F, Hawkesworh CJ & Fairchild IJ:**
U Isotope Systematics in Four European Stalagmites: New Insights and Implications for Palaeoclimatic Reconstruction

11:45 **Beets CJ & Beets DJ:**
The Penultimate Deglaciation in Western Europe: A Case-study from Amsterdam Basin, The Netherlands

(Symposium D Continued in Session Mo:pm on Page 24)

Symposium E
Biological Geochemistry

Convenors: Matthew Collins, Derek Lovely & Rob Raiswell.
Location: Oxford University Museum.

09:00 **Knoll A:**
KEYNOTE Biological Signatures in the Rock Record

09:30 **Engel M & Macko S:**
Life Prior to the Terrestrial Rock Record

09:45 **McDonald G, Bada J, Brinton K, Glavin D, Dorn E & Storrie-Lombardi M:**
Search Strategies for Organic Bio-signatures in Extraterrestrial Samples

10:00 **Butterfield NJ:**
The Early Evolution of Eukaryotic Heterotrophy

10:15 **Love GD:**
Exploring Biomarker Lipid Information Preserved in Complex Macromolecules

10:30 **Fleck S, Michels R, Faure P, Schlepp L, Elie M, Ashkan S & Landais P:**
Constraints on the Paleoenvironement Interpretation of Steranes from Ancient Sediments

10:45 **Abbott G, Edwards D, Drage T & Vane C:**
Molecular Characterization of Some of the Earliest Terrestrial Organisms

11:00 **Schouten S, Özdirekcan S, van Dongen BE, van der Meer MT & Sinninghe Damsté JS:**
Compound-Specific Stable Carbon Isotopes: The Effect of Biosynthetic Pathways

11:15 **van Duin A & Collins M:**
Investigation into Amino Acid Racemization Pathways Using Computational Chemical Methods

11:30 **Nguyen R & Harvey R:**
Preservation of Protein in Phytodetritus and Sediments via Macromolecular Aggregations

11:45 **Schall M, Ostrom P, Leykam J, Gandhi H, McNulty T & Gage D:**
New Insights into Ancient Proteins from Traditional and Novel Mass Spectrometric Approaches

(Symposium E Continued in Session Mo:pm on Page 24)

Symposium G
Flow and Reaction of Fluids in Crust

Convenors: Marian Holness & Terry Seward.
Location: Zoology A.

09:00 **Aranovich L:**
KEYNOTE The Petrologic Case for a Fluid-Present High-Grade Metamorphism

09:30 **Walther JV:**
Darcy Flow at Fluid Pressure Equal Rock Pressure

09:45 **Lewis S, Graham C, Thomas C, Bond C & Holness M:**
Time-scales and Mechanisms of Metamorphic Fluid Flow from Integrated Textural and $^{18}O/^{16}O$ Micro-analysis Studies of Metacarbonates: Evidence for Transient Flow Events

10:00 **Matthews A, Putlitz B, Gutkin V & Hamiel Y:**
Volatile Transport and Fluid-Rock Interaction in Aplites and Pegmatites Associated with the Crystallization of Anatectic Melts, Naxos, Greece

10:15 **McCaig AM, Guest R, Graham C & Banks D:**
Generation of Permeability in Metamorphic Rocks by Reaction with Basinal Brines: Dolomitisation in the SW Highlands of Scotland

10:30 **Jamtveit B, Malthe Sörenssen A & Austrheim H:**
Retrogressive Metamorphism: Mechanisms of Fluid Introduction to Impermeable Rocks

10:45 **Nabelek P:**
Lithologically-controlled Fluid Pathways on Thin-section Scale in the Notch Peak Calc-silicate Contact Aureole, Utah, USA

11:00 **Wada H:**
Microscale Stable Isotopic Zonation in the Crust and Formation of Isotopic and Chemical Fronts During Contact Metamorphism

11:15 **Touret JL:**
Fluids and Melts in Lower Crustal Granulites: The Inclusion Evidence

11:30 **Gleeson S, Grant K & Roberts S:**
Fluid Inclusion δD in Quartz Does Not Always Indicate the Source of Palaeo-hydrothermal Fluids

11:45 **Banks D & Yardley B:**
Tracking Brines in Crustal Processes

(Symposium G Continued in Session Mo:pm on Page 25)

Symposium J
Mantle Dynamics and Melting

Convenors: Tim Elliott & Erik Hauri.
Location: Clarendon Martin Wood.

09:00 **The Houterman Lecture**
Hauri E:
KEYNOTE Mantle Components and Mantle Reservoirs: Bridging the Disconnect

09:30 **Loubet M:**
New Interpretation of Earth-mantle Heterogeneities Favoring a Whole Convective Mantle Structure

09:45 **Joron J, Treuil M, Lewin É & Allègre C:**
Trace Elements Systematics in Basalts: A Global Approach

10:00 **Discussion:**

10:15 **Eiler J, Kitchen N, Gronvold K, McKenzie D, Stracke A & Zindler A:**
Oxygen Isotope Variations in Recent Magnesian Lavas from Iceland's Northern Neovolcanic Zone

10:30 **Elliott T & Koetsier G:**
U-Th Disequilibrium from Picrites to Tholeiites in the Iceland Rift

10:45 **Smit Y, Parkinson I, Hawkesworth C, Cohen A & Peate D:**
Low $^{187}Os/^{188}Os$ Isotope Ratios in Icelandic Basalts

11:00 **Kempton PD, Fitton JG, Francis D & Lass S:**
N-MORB or a Depleted Plume Component? Evidence from Hf-Nd Isotope Systematics of Tertiary Picritic and Basaltic Lava Flows from Baffin Island

11:15 **Regelous M, Hofmann AW, Abouchami W & Galer SJG:**
The Geochemical Evolution of Hawaiian Magmatism Since the Mesozoic: Evidence from Lavas from the Emperor Seamounts

11:30 **Abouchami W, Hofmann A & Galer S:**
Lead Isotopic Evidence for Multiple Components in the Hawaiian Plume

11:45 **Hofmann AW:**
An Endangered Geochemical Paradigm? The Relationship of Melts to Sources

(Symposium J Continued in Session Mo:pm on Page 26)

Symposium K
Life in Extreme Environments

Convenors: Mike Russell & Everett Shock.
Location: Earth Sciences.

09:00 **Shock E:**
KEYNOTE Characterizing the Biotic Fringe in Hydrothermal Ecosystems

09:30 **Amend J:**
Novel Hyper-thermophiles from Well-known and Previously Unexplored Shallow Marine Hydrothermal Sites

09:45 **Summit M & Baross J:**
Using Microbiology as a Tool to Explore Mid-ocean Ridge Sub-seafloor Systems

10:00 **Meyer DR, Shock EL & Amend JP:**
Geochemical Microenvironments in Hydrothermal Ecosystems

10:15 **Manning DAC & Cross MM:**
Rates and Mechanisms of Thermochemical Sulphate Reduction in Ocean Ridge Hydrothermal Systems: Implications for Nutrient Supply to Ocean Ridge Communities

10:30 **Helgeson HC, Afonso GJ & LaRowe DE:**
Thermodynamic Calculation of the Relative Stabilities of Enzymes, DNA, and Other Biomacromolecules Under Extreme Conditions of Temperature and pH

10:45 **Russell MJ, Hall AJ & Mellersh AR:**
The First Bacterial Habitats: What was Normal, What was Extreme?

11:00 **Lovley D, Kashefi K, Tor J, Vargas M & Reysenbach A:**
Microbial Reduction of Iron in Hot Environments: Implications for the Geochemistry of Ancient and Modern Environments

11:15 **Konhauser K, Phoenix V & Adams D:**
The Role of Biomineralization as an Ultraviolet Shield

11:30 **Rosing M & Frei R:**
Getting out of the Extreme: Possible Indications of Pre-3700 Ma Oxygenic Photosynthesis from Isua, West Greenland

11:45 **Vreeland R, Rosenzweig W, Lowenstein T & Powers D:**
Alive After 250 Million Years: Isolation of Live Permian Microorganisms

(Symposium K Continued in Session Mo:pm on Page 26)

Symposium L
Computational Geochemistry

Convenors: John Brodholt & Keith Refson.
Location: Zoology B+C.

09:00 **Sprik M & Boek E:**
KEYNOTE Ab Initio Molecular Dynamics Simulation of Model Smectite Clay System

09:30 **de Leeuw NH & Parker SC:**
Modelling the Effect of Magnesium and Cadmium Ions on Calcite Growth and Dissolution

09:45 **Ojo S, Slater B & Catlow R:**
The Computer Simulation Of Calcite Growth Inhibition: A Monophosphonate Study

10:00 **Becker U, Risthaus P & Bosbach D:**
Molecular Simulations and AFM Observations on the Interaction of Organic Growth Inhibitors and Ionic Strength on the Crystal Growth of Barite and Celestite

10:15 **Dysthe DK, Porcheron F & Rousseau B:**
Molecular Simulation of Pressure Solution Interfaces – Diffusion and Dynamic Interface Structure

10:30 **Chialvo A, Simonson JM & Cummings P:**
KEYNOTE Molecular Simulation of Hydrothermal Solutions

11:00 **Weare JH, Duan Z & Moller N:**
Molecular Simulation of the Thermodynamic Properties of Natural Fluids: Liquid/Vapor Equilibria in and Around the Critical Region in the Water System

11:15 **Tossell J:**
Theoretical Studies on Synergistic Interactions between Transition Metals and Heavy Metalloids

11:30 **Vinograd VL & Putnis A:**
Spin Models of Aluminosilicates

11:45 **Allan NL, Blundy JD, Purton JA & Lavrentiev MY:**
Mineral Simulations at High Temperatures and/or High Pressures – Monte Carlo, Lattice Dynamics and Ab Initio Studies

(Symposium L Continued in Session Mo:PO on Page 32)

Symposium O
Open Symposium

Convenor: Nigel Harris.
Location: Inorganic Chemistry.

09:00 **Handler M, Wysoczanski R & Gamble J:**
Lithospheric Mantle Evolution and Plume-Lithosphere Interaction in Marie Byrd Land, West Antarctica: Sr, Nd, Os and Pb Isotopes in Spinel Peridotite Xenoliths

09:15 **Zhang H, Lu F, Liu Y, Zhou X, Sun M & Zhou M:**
Fertile Lithosphere Mantle beneath Yangtze Craton: Evidence from a Garnet Lherzolite from Dahongshan Kimberlite, Hubei, China

09:30 **Kadik A, Pineau F, Litvin Y, Jendrzejewski N, Martinez I & Javoy M:**
Formation of Carbon and Hydrogen Species in Magmas at low Oxygen Fugacity

09:45 **White RV, Crowley JL, Nowell GM & Parrish RR:**
Probing the Hf Isotope Systematics of the Sub-Continental Mantle at 3.5 Ga: The Tarssartôq Dykes of the Isua Region, Southern West Greenland

10:00 **Chinn I, Kyser K & Viljoen F:**
Microdiamonds from the Thirsty Lake (Akluilâk) Dyke, Northwest Territories, Canada

10:15 **Schmickler B, Jacob D & Foley S:**
Sanidine and Orthopyroxene Bearing Eclogite Xenoliths from the Zero Kimberlite Pipe

10:30 **Mueller W, Stachel T, Harris JW & Halliday AN:**
Isotopic Composition of the Earth's Lower Mantle from Ca-silicate Inclusions in Diamonds

10:45 **Koppers A, Phipps Morgan J & Staudigel H:**
Contrasting Mantle Convection Models by Modeling their Geochemical Evolution with the Terra Nova Toolbox (TnT2000)

11:00 **Gautheron C & Moreira M:**
Helium Residence Time in the Subcontinental Mantle

11:15 **Weyer S, Muenker C, Rehkaemper M & Mezger K:**
Unusually low Zr/Hf and Nb/Ta Ratios in the Depleted Mantle: Precise ID Analysis of Ultra low Concentrations by MC-ICPMS

11:30 **Luguet A, Alard O, Lorand J, Pearson N, Ryan C & O'Reilly S:**
Platinum Group Elements Geochemistry of Abyssal Peridotites: An Integrated Study in the MARK Area (Mid-Atlantic Ridge, 20-24 N) Using ICP-MS, LAM-ICPMS, SEM and Nuclear Microprobe (NMP)

11:45 **McDade P, Burgess S & Harte B:**
The Continuing Problems of Ni in Garnet Thermometry: A SIMS Study of Ni in the Jagersfontein Peridotite Garnets

(Symposium O Continued in Session Mo:pm on Page 27)

Symposium A
Terrestrial Planets and Meteorites

Convenors: Alex Halliday & Ed Young.
Location: Clarendon Lindemann.

14:00 **Göpel C & Manhès G:**
U/Pb Study of Feldspars: Constrains on the Initial Pb of Equilibrated Meteorites

14:15 **Bodnar R & Zolensky M:**
Liquid-Water Fluid Inclusions in Chondritic Meteorites: Implications for Near-Surface P-T Conditions on Parent Asteroids

14:30 **Luais B:**
Primary Metal-silicate Differentiation of Planetesimals: Isotopic Fractionation of Germanium in Iron Meteorites and in the Earth Crust

14:45 **Liu M & Fleet ME:**
Partitioning of Siderophile Elements in the Fe-Ni-S System: Evolution of Asteroidal Cores and Geochemistry of Earth's Core

15:00 **Heber VS, Baur H & Wieler R:**
Heavy Solar Noble Gases in Meteorites – New Insights into a Unique Archive of Solar Wind

15:15 **Hopp J & Trieloff M:**
^{40}Ar-^{39}Ar Ages of H-Chondrites: Constraints on Parent Body Thermal Metamorphism

15:30 **Burgess R, Holland G, Fernandes V & Turner G:**
New Ar-Ar Data on Nakhla Minerals

15:45 **Zhu X, Guo Y, Galy A, O'Nions K, Young E & Ash R:**
High Precision Iron Isotope Measurements in Meteorites

(Symposium A Continued in Session Mo:PO on Page 28)

Symposium C
Subduction Zone Processes

Convenors: Jon Blundy, Chris Hawkesworth & Dave Rubie.
Location: Clarendon Townsend.

14:00 **Parkinson IJ:**
Composition of the Mantle Wedge: Insights from Osmium Isotopes

14:15 **Pearce J, Kempton P & Nowell G:**
The Origin of HFSE Anomalies in Subduction Zone Magmas: Evidence from Hf-Nd Isotope and Element Covariations

14:30 **Mysen BO & Wheeler K:**
Solution Behaviour of H_2O in Haploandesitic Melts in the Pressure-Temperature Regime of the Upper Mantle

14:45 **Carmichael I:**
Hydrous Mantle-derived Magmas in West-central Mexico; the Andesitic Aqueduct

15:00 **Green DH & Lus W:**
KEYNOTE Phase Relations and Magmatism in the Mantle Wedge Above Subduction Zones

15:30 **Fumagalli P & Poli S:**
Hydrates in Synthetic Peridotites and Mechanisms of Hydrogen Transport at High Pressure

15:45 **Bolfan-Casanova N, Keppler H & Rubie DC:**
Partitioning of Water between Magnesium Silicate Perovskite and Other High-Pressure Phases

(Symposium C Continued in Session Mo:PO on Page 28)

Symposium D
Rapid Climate Change (Continents/Oceans)

Convenors: Edouard Bard & Frank McDermott.
Location: Physical Chemistry.

14:00 **Fairchild IJ, Baker A & Huang Y:**
Multi-element Trace Element Proxies in Speleothems

14:15 **McGarry S, Hawkesworth C, Baker A & Caseldine C:**
TIMS U-Th Dated Multiproxy Speleothem Records of Late Quaternary Climate and Environmental Change in England

14:30 **Bar-Matthews M, Gilmour M, Ayalon A, Vax A, Kaufmann A, Frumkin A & Hawkesworth C:**
Variation of Palaeoclimate in the Eastern Mediterranean Region – As Derived from Speleothems in Various Climate Regimes in Israel

14:45 **McDermott F, Mattey D & Hakesworth C:**
Evidence for an Abrupt, High-Amplitude Climate Fluctuation c. 8,300 Years ago in a new Laser Ablation $\delta^{18}O$ Record for a Holocene Speleothem from S.W. Ireland

15:00 **Burns S, Neff U, Mudelsee M, Fleitmann D, Mangini A & Matter A:**
Evidence for Solar Forcing of the Indian Ocean Monsoon in a High-resolution Speleothem Record from Oman

15:15 **Eikenberg J, Zumsteg I & Butterweck G:**
$^{226}Ra/^{234}U$ and $^{230}Th/^{234}U$ Dating of Holocene Corals and Speleothem

15:30 **Ménot G & Burns SJ:**
Climatic Significance of the $^{13}C/^{12}C$ and $^{18}O/^{16}O$ Variations in Organic Matter: Calibration in Modern Plants and Application to the Paleoclimate Analysis of the Last 3000 Years in Central Europe

15:45 **Ayalon A & Longstaffe FJ:**
Indications of Late Holocene Climate Change from Stable Isotope Variations in Soil Organic Carbon, Pedogenic Calcite and Land Snails from the Southern Great Lakes Region, Canada

(Symposium D Continued in Session Tu:am on Page 35)

Symposium E
Biological Geochemistry

Convenors: Matthew Collins, Derek Lovely & Rob Raiswell.
Location: Oxford University Museum.

14:00 **Farrimond P, Innes H, Watson D, Talbot H & Head I:**
Bacterial Hopanoids as Environmental Markers

14:15 **Lee T & Chiu C:**
Corals do not Lie About their Temperature

14:30 **Swart PK:**
Carbon Isotopic Records in Coral Skeletons: What do They Mean?

14:45 **Košler J, Kucera M, Holcova K, Symonova R & Sylvester P:**
Li Isotopic Composition of Foraminiferal Tests: A Possible Proxy for Li Isotopic Composition of the Sea Water

15:00 **Habermann D, Banerjee A, Goette T, Meijer J, Stephan A & Richter DK:**
Preservation and Chemical Alteration of Biogenic Francolite and Calcite from Marine Organism

15:15 **Reiche I, Peaudecerf A, Vignaud C, Menu M & Charlet L:**
Impact of the Burial Environment on Archaeological Bone Preservation. The Example of the Neolithic Lacustrine Sites 19 and 21 of Chalain, France

15:30 **Richards M:**
Stable Carbon and Nitrogen Isotope Values in Bone Collagen from Europe, 0-40 ka: Implications for Climatic and Palaeodietary Research

15:45 **Montgomery J, Evans J & Budd P:**
Sr and Pb Isotopes for Tracking Human Historical and Ancient Migrations

(Symposium E Continued in Session Tu:am on Page 35)

Symposium G
Flow and Reaction of Fluids in Crust

Convenors: Marian Holness & Terry Seward.
Location: Zoology A.

14:00 **Reyes AG:**
KEYNOTE Fluid-Rock Interaction at the Magmatic-Hydrothermal Interface of the Mt. Cagua and Mt. Mahagnao Geothermal Systems, the Philippines

14:30 **Kastner M, Morris J, Chan L, Saether O, Luckge A & Silver E:**
Three Distinct Fluid Systems at the Costa Rica Subduction Zone: Chemistry, Hydrology, and Fluxes

14:45 **Teagle DA, Bickle MJ & Alt J:**
High Temperature Mid-ocean Ridge Hydrothermal Flux Estimates from Sr-transport Modeling of Fluid-rock Exchange in Hole 504B

15:00 **Arnórsson S & Stefánsson A:**
Mineral-Solution Equilibria in Groundwater Systems

15:15 **Mroczek EK, White SP & Mountain BW:**
Precipitation Rates of Quartz from Wairakei (New Zealand) Geothermal Field Brine at Temperatures between 200ºC and 250ºC

15:30 **Heinrich CA, Matthai SK & Driesner T:**
Geologic Complexity in Fluid-Flow Models for Ore-Forming Hydrothermal Systems

15:45 **James RH:**
Copper Isotope Studies of Submarine Hydrothermal Systems

(Symposium G Continued in Session Mo:PO on Page 29)

Symposium H
Weathering and Erosion: Mechanisms and Rates

Convenors: Mike Bickle, Niels Hovius & Mike Summerfield.
Location: Zoology B+C.

14:00 **Stone J & Vasconcelos P:**
KEYNOTE Studies of Geomorphic Rates and Processes with Cosmogenic Isotopes – Examples from Australia

14:30 **Vance D, Bickle MJ, Ivy-Ochs S & Kubik PW:**
Cosmogenic Isotope Measurements of Erosion Rates in the Himalayas

14:45 **Schaller M, von Blanckenburg F, Hovius N & Kubik PW:**
Large-scale, Long-term Erosion Rates Determined from ^{10}Be in European River Sediments

15:00 **von Blanckenburg F, Schaller M, Veldkamp T, Kubik P & Hovius N:**
Late Pleistocene to Holocene Erosion Rate Variations from Cosmogenic Nuclides in River Terrace Sediments

15:15 **Négrel P, Kloppmann W, Garcin M & Giot D:**
Chronology of Fluvial Sediments in the Loire River Valley Over the Past 8500 Years:

15:30 **Schaefer JM, Orombelli G, Baroni C, Ivy-Ochs S, Wieler R, Baur H, Oberholzer P, Kubik PW & Schluchter C:**
Comparing Cosmogenic Nuclide Studies in the Dry Valleys and the Terra Nova Bay Area: Is the Antiquity of the Dry Valleys' Block Unique in Antarctica?

15:45 **Tucker G:**
Weathering, Erosion, and the Tempo of Landscape Change: A Theoretical Evaluation

(Symposium H Continued in Session Tu:am on Page 36)

Symposium J
Mantle Dynamics and Melting

Convenors: Tim Elliott & Erik Hauri.
Location: Clarendon Martin Wood.

14:00 **Spiegelman M:**
KEYNOTE Making...Moving...Mixing? The Role of Magma Transport in Controlling Observable Geochemical Variation in Mantle Melts

14:30 **Maclennan J, McKenzie D, Hilton F & Gronvold K:**
Geochemical Variability in a Single Flow from NE Iceland

14:45 **Sobolev A & Hofmann A:**
Extreme Compositional Variability of Hawaiian Primary Melts: The Clue to the Origin of Classical Mantle Plume?

15:00 **Bryce JG, Shuster DL, Dodson A, DePaolo DJ & Kennedy BM:**
Structure of the Hawaiian Plume from the Isotopic Trail of Senescence of the Mauna Loa and Mauna Kea Volcanoes

15:15 **Heumann A, Blichert-Toft J, Koetsier G & Elliott T:**
Sao Miguel, Revisited: New Perspectives on the Mantle Source and Melting Processes beneath the Azores

15:30 **Saal A, Kurz M, Hart S, Blusztajn J, Layne G, Sims K & Geist D:**
U Series Isotopic Variability in Galapagos Lavas, Evidence of a Mildly Buoyant Plume

15:45 **Hawkesworth C, Thomas L, Kokfelt T & Turner S:**
Melt Generation and Differentiation for Central Atlantic OIB

(Symposium J Continued in Session Tu:am on Page 37)

Symposium K
Life in Extreme Environments

Convenors: Mike Russell & Everett Shock.
Location: Earth Sciences.

14:00 **Catling DC & McKay CP:**
KEYNOTE Aqueous Iron Chemistry on Early Mars: Was it Influenced by Life?

14:30 **Wynn-Williams DD, Edwards HG & Newton EM:**
Key Survival Biomolecules for Extreme Polar Deserts: Antarctica and Mars

14:45 **Gillet P, Achouak W, Barrat J, Benzerara K, Guyot F, Heulin T, Lemelle L & Lesourd M:**
The Tatahouine Meteorite: A Case Study of Life Under Extreme Conditions

15:00 **Benzerara K, Lemelle L, Heulin T, Barakat M, Lesourd M, Guyot F & Gillet P:**
Experimental Study of Culture Media of a Bacteria from Dry Environment

15:15 **Haese RR & De Lange GJ:**
Pore Water Geochemistry of CH_4-rich Mud Volcano Sediments in the Eastern Mediterranean Sea: Implications for Anaerobic Methane Oxidation, Presence of Gas Hydrates, and Intensive Irrigation

15:30 **Pancost R, Hopmans E, Werne J & Sinninghe Damste J:**
Heterogeneity Of Anaerobic Methane-Oxidizing Archaeal Communities in the Mediterranean Inferred from Lipid Distributions And Carbon Isotopic Compositions

15:45 **Bouloubassi I, Aloisi G, Pancost RD, Sinninghe Damste JS, Pierre C & MEDINAUT Scientific Party:**
Lipid Biomarkers in Carbonate Crusts from Mud Volcanoes of the Eastern Mediterranean Ridge: Implications for Methane Oxidation

(Symposium K Continued in Session Mo:PO on Page 31)

Symposium O
Open Symposium

Convenor: Nigel Harris.
Location: Inorganic Chemistry.

14:00 **McCulloch M, Fallon S, Alibert C & Sinclair D:**
Sentinels of the Marine Environment: High Resolution LA-ICP-MS Trace Element Analyses of Corals from the Great Barrier Reef

14:15 **Arvidson RS & Mackenzie FT:**
Geochemical Cycling of Major Seawater Components Over the Past 150 Ma

14:30 **Decitre S, Deloule E, Reisberg L, James R, Mevel C & Agrinier P:**
Li Behaviour During Serpentinisation of Oceanic Peridotites

14:45 **Lancelot C, Hannon E, Sylvie B, Probst G, Goosse H, Schoemann V & de Baar H:**
Modeling the Present-day CO_2 Drawndown in the HNLC Southern Ocean

15:00 **Lasaga AC & Ohmoto H:**
The Oxygen Geochemical Cycle: Dynamics, Stability and Evolution

15:15 **Smedley P, Nicolli H & Macdonald D:**
Hydrogeochemistry of Arsenic and Other Problem Constituents in Groundwaters from La Pampa, Argentina

15:30 **Lemarchand D, Gaillardet J, Lewin E & Allègre C:**
Models of Secular Evolution of the Boron Isotopic Ratio in the Oceans: Implications for Oceanic Paleo-pH Reconstruction

15:45 **Cave RR, German CR, Khripounoff A, Nesbitt RW & Thomson J:**
A Spatial and Temporal Record of the Hydrothermal Plume at Rainbow, 36N on the MAR

(Symposium O Continued in Session Mo:PO on Page 32)

Symposium A
Terrestrial Planets and Meteorites

Convenors: Alex Halliday & Ed Young.
Location: Poster Hall.

1 **Bauluz B, Peacor D & Elliott C:**
Coexisting Altered Glass, Fe-Ni Oxides, and Shocked Spherules at the K-T Boundary, Stevns Klint (Denmark): Direct Evidence of Meteorite Impact

2 **Tanimizu M & Tanaka T:**
Ce-Nd-Sr Isotope Systematics of Lunar Samples and Origin of Ce Anomalies on the Moon

(Symposium A Continued in Session Tu:am on Page 34)

Symposium C
Subduction Zone Processes

Convenors: Jon Blundy, Chris Hawkesworth & Dave Rubie.
Location: Poster Hall.

1 **Arslan M, Aslan Z, Sen C & Hoskin PW:**
Constraints on Petrology and Petrogenesis of Tertiary Volcanism in the Eastern Pontide Paleo-Arc System, NE Turkey

2 **Aslan Z:**
Rift Related Arc Volcanism During Liassic Time in the Southern Zone of Eastern Pontide Arc, NE Turkey

3 **Benton L & Tera F:**
Lithium Isotope Systematics of the Marianas Revisited

4 **Brooker R, Blundy J & James R:**
Subduction-Related Mantle Pyroxenites from Zabargad Island, Red Sea

5 **Chiang KK, Macpherson C, Hall R & Thirlwall M:**
A Comparative Study of the Geochemistry and Tectonic Setting of Cenozoic Igneous Rocks from East Kalimantan and Sabah, Borneo

6 **Demeny A, Vennemann T, Homonnay Z, Embey-Isztin A & Dobosi G:**
Stable Isotope, Fe^{III}/Fe^{II}, and Trace Element Evidence for Subduction-related Fluids in the Upper Mantle beneath the Pannonian Basin

7 **George R, Turner S, Nye C & Hawkesworth C:**
Along-arc U-Th-Ra Disequilibria in the Aleutians: Rapid Timescales of Fluid Transfer

8 **Glodny J, Austrheim H & Rusin A:**
Dating of Subduction-Related Fluid Mineralizations: Constraints on the Life Span of a Paleozoic Subduction System in the Polar Urals, Russia

9 **Harangi S & Downes H:**
Contrasting Origins of Neogene Calc-alkaline Volcanic Suites in the Carpathian-Pannonian Region, Eastern-Central Europe

10 **Hobden BJ, Hora JM & Davidson JP:**
Complex Differentiation Histories Revealed by Short-Term Geochemical and Isotopic Variations between and within Lavas of Ngauruhoe Volcano, New Zealand

11 **Lange R:**
No Correlation between the SiO_2 Content of Erupted Magma Type (Basalt-Andesite-Dacite) and Crustal Thickness (~30-50 km) along the Mexican Volcanic Arc

12 **Laurora A, Mazzucchelli M, Rivalenti G, Vannucci R, Zanetti A & Cingolani CA:**
Melt Migration in the Mantle Wedge: A Case Study from Patagonia Back-arc

13 **Mathur R, Ruiz J, Titley S & Gibbins S:**
Different Crustal Sources for Au-rich and Au-poor Ores of the Grasberg Porphyry Copper Deposit, Irian Jaya

14 **McBride J, McInnes B, Lambert D & Keays R:**
Re-Os Isotope Systematics of Indonesian Arc Lavas and Porphyry Intrusions

15 **Minissale A, Kerrick DM, Magro G, Rihs S & Sturchio NC:**
The Origin, Transport, Crustal Storage and Expulsion of CO_2 Associated with Italian Thermal Springs and Travertines

16 **Moriguti T & Nakamura E:**
Across-arc Variation of Li Isotope in the Izu Arc: Implications for Crust-Mantle Recycling at Subduction Zones

17 **Mukasa S, Blatter D & Andronikov A:**
Arc Mantle Xenoliths and their Quaternary Andesite Host Rocks Near El Peñon, Central Trans Mexican Volcanic Belt: A Trace Element and Radiogenic Isotope Study

18 **Munday D, Thirlwall M & Smith T:**
Isotopic Variation in Cumulate Xenoliths from Bequia, Lesser Antilles

19 **Nakamura E & Nakano T:**
Boron Isotopic Geochemistry of Metasedimentary Rocks and Tourmalines in a Subduction-zone Metamorphic Suite

20 **Santo AP & Peccerillo A:**
Magma Evolution at Filicudi Volcano, Aeolian Arc, Italy

21 **Suzuki K, Aizawa Y & Tatsumi Y:**
Osmium Transport During Dehydration Processes in the Subducted Slab: Experiments and Implications for the Os Isotopic Compositions of Arc Magmas

22 **Tessalina S, Guerrot C, Gannoun A, Orgeval J & Zaykov V:**
Isotopic Indicators of Subduction Process in South Urals (Russia)

23 **Thompson PM, Tarney J, White RV, Saunders AD, Kempton PD & Kerr AC:**
The Geochemical and Tectonic Origin of Island Arcs Associated with the Caribbean Oceanic Plateau

24 **Togashi S, Imai N, Okuyama-Kusunose Y, Tanaka T, Okai T, Koma T & Murata Y:**
Young Upper Crustal Chemical Composition of the Orogenic Japan Arc

25 **Vroon PZ & Van Bergen MJ:**
Geochemical Evidence for two Subducting Plates beneath North Sulawesi (Indonesia)

26 **Wang K, Chung S, Chen C & Chen C:**
Geochemical Constraints on the Petrogenesis of High-Mg Basaltic Andesites from the Northern Taiwan Volcanic Zone and their Geodynamic Significance

27 **Widom E:**
Os Isotope Systematics in Java and Flores, Indonesia

28 **Williams CA, Rogers NW, Hawkesworth CJ & Turner SP:**
The Geochemistry of Mt. Misery Volcano, St. Kitts, Lesser Antilles

29 **Zack T, Rivers T & Foley SF:**
What Governs the Origin of the Slab Component in Subducting Oceanic Crust? Insights from Trace Element Distribution in Deformed and Massive Eclogites

30 **Zheng Y:**
From Isotopic Exchange Kinetics to Geodynamics of Continental Subduction:

(Symposium C Continued in Session Tu:am on Page 34)

Symposium G
Flow and Reaction of Fluids in Crust

Convenors: Marian Holness & Terry Seward.
Location: Poster Hall.

1 **Ader M, Boudou J, Roux J, Daniels E & Javoy M:**
Nitrogen Isotopic Composition of Fixed Ammonium in Rocks: Evidence for a Possible Ammonia Stability in Fluids?

2 **Adler M, Mäder UK & Waber HN:**
The Role of Multicomponent Cation Exchange and Dedolomitisation in Argillaceous Rock at Conditions of High-pH

3 **Althaus T, Niedermann S & Erzinger J:**
A Clusius Column in the Crust? Anomalous Noble Gas Isotope Ratios in Exhalations from the East Carpathians, Romania

4 **Baxter EF, DePaolo DJ & Renne PR:**
Sr and Ar Isotopic Variations About a Lithologic Contact near Simplon Pass, Switzerland: Implications for Diffusional Exchange and Geochronology

5 **Bodó P, Vaselli O, Szabó C, Tassi F, Casiglia A & Magro G:**
Hydrogeochemistry of the Bakony-Balaton-highland Volcanic Field (Western Hungary)

6 **Casanova J, Négrel P, Blomqvist R & Wikberg P:**
Boron Isotope Fractionation in Groundwaters as an Indicator of Permafrost Past Conditions in the Fractured Crystalline Bedrock of the Fennoscandian Shield

7 **Chevychelov V, Simakin A & Bondarenko G:**
Experimental Study of the Effect of Composition and Phase State of Chloride Fluid on Solubility of Chlorine in the Granodiorite Melt. On Structural Positions of Chlorine in the Melt

8 **Coleman M, Eggenkamp H & Aranyossy JF:**
History of Solute Transport in a 400 m Mudrock Sequence, Calibrated by Laboratory Chlorine Stable Isotope Diffusion Experiments

9 **Cross MM & Bottrell SH:**
Reconciling Experimentally Observed Sulphur Isotope Fractionation During Thermochemical Sulphate Reduction (TSR) with Field Data: A “Steady-State” Model of Isotopic Behaviour

10 **Czaplinski W:**
Mobility of Elements Associated with Deformation of the Izera Granite (Izera-Karkonosze Block, SW Poland)

11 **De SK, Cole DR, Riciputi LR, Chacko T & Horita J:**
Experimental Determination of Hydrogen Diffusion Rates in Hydrous Minerals Using the Ion Microprobe

12 **Dunk R, Jenkins W & Mills R:**
The Ridge Flank Flux of Uranium and Seawater

13 **Fiebig J, Simon K & Hoefs J:**
Exchange Mechanisms, Fluid Flow and Fluid Evolution During Hydrothermal Alteration of Granites

14 **Gavrieli I, Zheng Y, Van Geen A, Stute M, Dhar R, Ahmed KM, Simpson J & Goldstein SL:**
Hydrogeochemical Study of Arsenic Contamination in Bangladesh Groundwater – The Role of Redox Condition

15 **Haefner A & Aranovich L:**
H_2O Activity in H_2O-N_2 Fluids at 10 kbar Measured by the Brucite-Periclase Equilibrium

16 **Hannah JL, Morgan JW & Scherstén A:**
Re-Os Systematics in Diagenetic Pyrite from Continental Sedimentary Rocks: Potential for Geochronology and Isotopic Tracer Studies

17 **Driesner T:**
Molecular Simulation and the Derivation of Fluid Properties for Fluid Flow and Reactive Transport Simulations

18 **Isakson A & Portnov A:**
Energy of Lithosphere Plate Deformation

19 **Minissale A, Vaselli O, Tassi F, Grechi G, Magro G & Montegrossi G:**
Fluid Geochemistry vs. Neotectonics: Constraints from the Rapolano Terme Area (Siena-Radicofani Basin, Central-Northern Apennine, Italy)

20 **Kloppmann W, Schomburgk S & Elsass P:**
Isotopic Tracers (Sr, C, B, S, O, H) Reflecting Flow Conditions in an Artesian Siliciclastic Aquifer

21 **Krogh T & Davis D:**
Preferential Dissolution of Radiogenic Pb from Alpha Damaged Sites in Annealed Minerals Provides a Mechanism for Fractionating Pb Isotopes in the Hydrosphere

22 **Morrison J & Anderson L:**
Footwall Refrigeration in the Whipple Mountains Metamorphic Core Complex, CA

23 **Mountain BW & Seward TM:**
The Hydrosulphide/sulphide Complexes of Copper(I): Experimental Confirmation of the Stoichiometry and Stability of $Cu(HS)_2^-$ to Elevated Temperature

24 **Ogiermann J & Kalt A:**
Chemical Characterization of Cordierite Breakdown Products in Gneisses and Migmatites of the Schwarzwald and the Bayerische Wald

25 **Pollok K, Austrheim H & Putnis A:**
An Analytical TEM Study on Complex Zoning Patterns in Garnets from Bergen Arcs Eclogites

26 **Putnis A & Mauthe G:**
The Effect of Pore Size on Salt Cementation in Porous Rocks

27 **Safonov O:**
Fluid Reactions During Formation of Coronitic Textures in Rocks from the Adirondack Complex (USA)

28 **Salas J, Ayora C & Bitzer K:**
Oxidation Processes of the Natural Nuclear Reactor of Okélobondo (Gabon): Reactive Transport Modelling

29 **Sarda P, Anne B & Alain P:**
The $^{20}Ne/^{36}Ar$ Ratio as a Tracer for Ancient Oil: The Oil-Water and Gas-Water Double Distillation Model

30 **Schaefer B, Pearson G, Rogers N & Barnicoat A:**
Re-Os Isotope and PGE Constraints on the Timing and Origin of Gold Mineralisation in the Witwatersrand Basin: A Hybrid Model

31 **Severmann S, Mills RA & Palmer MR:**
The Geochemistry of a Relict Hydrothermal Deposit: Effects of Low Temperature Alteration

32 **Smith M, Henderson P, Long J & Williams CT:**
REE and Uranium in Skarn Garnets and Other Phases: Constraints on the Transport of U and REE in Skarn Forming Fluids

33 **Smith M & Henderson P:**
Fluid Evolution and The Formation and Alteration of Allanite in Skarn from the Beinn an Dhubaich Granite Aureole, Skye

34 **Soler JM:**
One-dimensional Reactive Transport Modelling of the Interaction between a High-pH Plume and a Fractured Granodiorite. The GTS-HPF Project

35 **Seward TM:**
Molecular Aspects of Water Activity in Hydrothermal Solutions: Insight from X-ray Absorption Spectroscopy, Molecular Dynamics and Stable Isotope Fractionation

36 **Suleimenov OM, Banerjee D & Seward TM:**
Vapour-Liquid Equilibrium Study of Silicon Tetrachloride-CO_2 System

37 **Szocs T:**
Water-rock Interactions and Infiltration Calculations

38 **van Soest MC, Torgersen T & Kennedy BM:**
Rare Gas Isotopic and Elemental Constraints on Oil Migration and Hydrogeological Processes: The Statfjord, Snorre and Gullfaks Fields, Norwegian North Sea Oil Province

39 **Vaselli O, Rossi F, Tassi F, Magro G, Petrov P, Kolios N, Minissale A & Marchev P:**
The Southern Strimon Lineament (Bulgaria/Greece): A Fluid Geochemistry Study

40 **Labotka TC, Souza P & Nabelek P:**
Coupled Mineralogic Reaction and Isotopic Exchange in Regionally Metamorphosed Dolomite, Death Valley, California

41 **Aggarwal J, Palmer M & Mezger K:**
Systematics of Saline Hydrothermal Systems: Evidence from the Sub-aerial Saline Systems on Iceland

42 **Montegrossi G, Tassi F, Vaselli O & Garofalo K:**
Analysis of Sulphur Species in Volcanic Gases

43 **Gilmour J, Whitby J, Pattrick R & Turner G:**
A Novel Radiometric Dating Technique

44 **Wiersberg T, Niedermann S, Erzinger J, Levsky LK & Lokhov KI:**
Noble Gas Investigations of Early Proterozoic Lamproites from the Eastern Baltic Shield

45 **Everett CE & Wilkinson JJ:**
Tracing Crustal Fluid Flow beneath the Irish Zn-Pb Orefield

46 **Willan RC, Boyce AJ & Fallick AE:**
Stable-Isotopic Investigation of Plutons Intruded at High, Polar, Latitudes During the Mesozoic: Low-^{18}O Melts or Interactions with Light Polar Waters?

47 **Migdisov AA, Kister P & Williams-Jones AE:**
An Experimental Study of the Solubility of Liquid Mercury in Octane and Dodecane at Temperatures up to 200^{o} C

48 **Wilson J, Ragnarsdottir V, Savage D & Cressey G:**
The Effect of Iron on the Stability of Montmorillonite

49 **Zetterström L & Sunde T:**
Galena S Isotopes in and Around the Natural Fission Reactors at Oklo and Bangombé, Gabon

(Symposium G Continued in Session Tu:am on Page 36)

Symposium K
Life in Extreme Environments

Convenors: Mike Russell & Everett Shock.
Location: Poster Hall.

1 **Bobrov V, Strakhovenko V, Shcherbov B, Gavshin V, Malikova I, Sukhorukov F, Kovalev S, Stepin A & Melgunov M:**
Radionuclide ^{137}Cs in the Lake Deposits of the Altai Region

2 **Cox JS & Seward TM:**
UV-Vis Spectrophotometric Investigations into Amino Acids in Aqueous Solution at High Temperatures and Pressures

3 **Garvie LA, Bungartz F, Nash TH & Knauth LP:**
Caliche Dissolution and Calcite Biomineralization by the Endolithic Lichen *Verrucaria rubrocincta* Breuss in the Sonoran Desert

4 **Nilsson EL:**
Microbes in the Hyper Alkaline Springs of Maqarin, Jordan, a Natural Analogue for Water/Cement Interaction

5 **Ziebis W, Böttcher ME, Weber A, Miquel J, Sievert S & Linke P:**
Bacterial Sulfate Reduction and Sulfur Isotope Discrimination in the Hypersaline and Hypersulfidic Water Column of the Urania Basin (Mediterranean Sea)

Symposium L
Computational Geochemistry

Convenors: John Brodholt & Keith Refson.
Location: Poster Hall.

1 **Buccianti A, Peccerillo A & Santo AP:**
Bi-Plot Analysis to Explore Major Oxide Composition in Basic Rocks from Filicudi (Aeolian Islands, Southern Italy): Comparison with Classical Harker Diagrams

2 **Buccianti A, Vaselli O, Minissale A, Tassi F & Gallorini L:**
Multivariate Analysis of Water Geochemical Data: A Case Study in the Chiavenna Valley (Central Alps, Northern Italy)

3 **Churakov S & Gottschalk M:**
Thermodynamic Properties of Natural Fluids at High Temperatures and Pressures

4 **de Leeuw NH, Parker SC, Catlow CRA & Price GD:**
Modelling Proton-containing Defects in Forsterite

5 **Emetz A & Skakun L:**
Numerical Modeling of Sb-containing Sulphide Aggregates Formation in the Beregovo Epithermal Ore Field (Intercarpathian, Ukraine)

6 **Harris D & Brodholt J:**
Molecular Dynamics Modelling of Zn^{2+} Speciation in Hydrothermal Fluids

7 **Kolonin G & Shironosova G:**
Concentration and Aqueous Species of REE-Y in Hydrothermal Fluoride Fluids: Dependence on their T-P Parameters and Chemical Features

8 **Oganov AR, Brodholt JP & Price GD:**
Equation of State and Elasticity of $MgSiO_3$ Perovskite at High Temperatures from *Ab Initio* Molecular Dynamics: Towards Interpreting Seismic Tomography

9 **Scrivner NC & Rafal M:**
Error Propagation in Aqueous Equilibrium Calculations

Symposium O
Open Symposium

Convenor: Nigel Harris.
Location: Poster Hall.

1 **Aono T, Yamada M & Harada K:**
Particle Removal with ^{234}Th in the Shelf Edge of the East China Sea

2 **Benning LG, Shaw S & Terrill NJ:**
The Nucleation of Particulate FeS Observed with Small- and Wide Angle X-ray Scattering

3 **Cartigny P, Harris J, Phillips D & Javoy M:**
Evidence that Most Peridotitic and Eclogitic Diamonds from Kimberley Pool (RSA) Crystallised from the Same Carbon Source

4 **Dange C, Charmasson S, Gonzalez JL, Thouvenin B, Boutier B, Chiffoleau JF, Auger D & Chartier E:**
Experimental Approaches for Modeling of the Behaviour of Trace Metals and Radionuclides in Coastal Zones: Application to Cadmium and Cobalt in French Estuaries

5 **Heaney PJ & Post JE:**
Evidence for a Frustrated Phase Transition in the Silica Polymorph Moganite Near 500 K

6 **Niedermann S:**
A Revised Value for the Production Rate of Cosmogenic ^{21}Ne in Quartz

7 **Satoh H & Matsuhisa Y:**
Effect of Crystallization Kinetics and Volatiles on Oxygen Isotope Fractionation between Anorthite and Basalt Melt: Direct Crystallization and Partial Melting Experiments at 1 atm

8 **Simonetti A, Schmidberger SS, Haas P & Francis D:**
In-Situ $^{87}Sr/^{86}Sr$ Analyses of Clinopyroxene from Mantle Xenoliths by Laser Ablation-MC-ICP-MS

9 **Smith A:**
Serpentinite Geochemistry as an Indicator of the Tectonic Setting of Ophiolitic Assemblages: Examples from the Qilian Fold Belt of Northwest China

10 **Stegman D & Jellinek M:**
Influence of the Crystallization and Chemical Differentiation of a Lunar Magma Ocean on the Subsequent Thermal Evolution of the Lunar Mantle

11 **Yamada M & Aono T:**
Large Particle Flux of Plutonium on the Continental Slope of the East China Sea

12 **Zedgenizov D & Shatsky V:**
Internal Structure and Impurity Heterogeneity of “Re-shaped” Diamonds

13 **Zhang H, Menzies MA, Zhao L, Lu F & Zhou X:**
Multiphase Mineral Inclusions in Diamonds from Fuxian and Mengyin Kimberlites, Eastern China

(Symposium O Continued in Session Tu:am on Page 38)

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Symposium A
Terrestrial Planets and Meteorites

Convenors: Alex Halliday & Ed Young.
Location: Clarendon Lindemann.

09:00 **Allègre C, Manhès G & Lewin É:**
Systematics for the Bulk Chemical Composition of the Earth Planet

09:15 **Quitté G, Birck J & Allègre CJ:**
Chronology of Early Events in the Eucrite Parent Body According to Hf-W Systematics

09:30 **Righter K & Shearer CK:**
Comparative Partitioning of Hf and W in Silicates: A Key to Understanding Radiogenic W in Terrestrial Planets

09:45 **Young ED:**
Terrestrial Planet Chemistry Explained by Evaporation of Dust in the Early Solar Nebula

10:00 **Javoy M:**
The EH Earth and the Chronology of its Formation

10:15 **Podosek FA, Woolum DS, Cassen P & Nichols, Jr. RH:**
Solar Gases in the Earth by Solar Wind Irradiation?

10:30 **Hidaka H:**
Isotopic Study of Neutron Capture Effects on Sm and Gd in Extraterrestrial Materials

10:45 **Lee D, Halliday A, Snyder G & Taylor L:**
Lu-Hf Systematics and the Early Evolution of the Moon

11:00 **Sharkov EV, Bogatikov OA & Ryakhovskyi VM:**
Similarities and Distinctions of Terrestrial Oceanic and Lunar Mare Magmatism: Evidence from Geochemical Data

11:15 **Morgan JW, Walker RJ, Brandon AD & Horan MF:**
Siderophile Elements in Earth's Upper Mantle and Lunar Breccias: Manifestations of the Same Late Influx

11:30 **Holzheid A & Palme H:**
Solubility of Germanium in Silicate Melts and its Significance for Core Formation in the Earth

11:45 **Kramers J & Tolstikhin I:**
Early Earth Evolution: Constraints from Combined Siderophile Element and Noble Gas Modeling

(Symposium A Continued in Session Tu:pm on Page 39)

Symposium C
Subduction Zone Processes

Convenors: Jon Blundy, Chris Hawkesworth & Dave Rubie.
Location: Clarendon Townsend.

09:00 **Kaneoka I:**
Noble Gas and Other Isotope Characteristics Relating to the Subduction Processes Around the Japanese Islands

09:15 **Scambelluri M, Bottazzi P, Trommsdorff V & Vannucci R:**
Solute-rich Supercritical Fluids Released from Deeply Subducted Hydrous Mantle

09:30 **Eiler J & Schiano P:**
KEYNOTE Evidence for Slab-derived Silicate Melt in the Sub-arc Mantle

10:00 **Turner S, Bourdon B & Hawkesworth C:**
A U-Th-Pa-Ra Isotope Constraints on Element Transfer Time Scales beneath the Tonga-Kermadec Island Arc

10:15 **Suzuki K & Tatsumi Y:**
Re-Os Isotopic Systematics of Setouchi High-Mg Andesites, SW Japan: Evidence for Slab Melting

10:30 **Godon A, Jendrzejewski N, Castrec-Rouelle M, Dia A, Pineau F, Boulègue J & Javoy M:**
Chlorine Recycling in Subduction Zones: New Constraints from Chlorine Stable Isotopes

10:45 **Discussion:**

11:00 **Rapp RP:**
KEYNOTE A Reassessment of the Origins of Silicic Magmas in Subduction Zones

11:30 **Kamber BS & Collerson KD:**
Element Fractionation in Subduction Zones: An Eclogite, Adakite, and 3.7 Ga Tonalite Perspective

11:45 **Kerrick D & Connolly J:**
Metamorphic Decarbonation and CO_2 Release in Subduction Zones: Implications to Fluid Fluxes and Volatile Recycling

(Symposium C Continued in Session Tu:pm on Page 39)

Symposium D
Rapid Climate Change (Continents/Oceans)

Convenors: Edouard Bard & Frank McDermott.
Location: Physical Chemistry.

09:00 **Tamburini F, Steinmann P, Gueguen C, Adatte T & Föllmi K:**
Variations of Detrital Inputs to the South China Sea from 0 to 150 kyr: A Mirror of Climate Change

09:15 **Ostertag-Henning C:**
Spatial and Temporal Distribution of Biomarkers in Sediments of the California Current System: Clues to Paleoecology and Paleoclimate

09:30 **Moreno A, Targarona J, Henderiks J, Canals M & Freudenthal T:**
Orbital Forcing of Dust Supply to the North Canary Basin Over the Last 250 kyrs

09:45 **Schefuss E, Pancost RD, Jansen JHF & Sinninghe Damsté JS:**
The mid-Pleistocene Climate Transition: Insight from Organic Geochemical Records from the Tropical Atlantic

10:00 **Lamy F, Hebbeln D, Rühlemann C & Wefer G:**
Reconstructing Continental Paleoclimate and Paleoceanographic Changes along the Chilean Continental Margin

10:15 **Arz H & Pätzold J:**
Late Glacial and Holocene Climate Changes in the Northern Red Sea: Teleconnections to the North Atlantic

10:30 **Cobb K, Charles C, Kastner M, Edwards L & Cheng H:**
Tropical Climate Characteristics of the Last Millennium as Revealed by Splicing Fossil Corals from the Central Pacific

10:45 **Boyle E:**
KEYNOTE Bermuda Rise Deepwater Link to Abrupt Climate Change in Greenland: Interstadials 8-14

11:15 **Stott L & Thunell R:**
Millennial-Scale Climate Variability in the Indo-Pacific Warm Pool During Marine Isotope Stage 3

11:30 **Thomson J, Mercone D, Abu-Zied R, Croudace I & Rohling E:**
Geochemical and Micro-palaeontological Evidence of a Climatic Perturbation during Formation of the Most Recent Eastern Mediterranean Sapropel

11:45 **Kim J, Schneider RR, Hebbeln D, Müller PJ & Wefer G:**
Alkenone-derived High-resolution Sea Surface Temperature Reconstruction in the Eastern South Pacific off Mid-latitude Chile over the Past 33 kyr

(Symposium D Continued in Session Tu:pm on Page 40)

Symposium E
Biological Geochemistry

A Session Dedicated to Prof Roland Wollast Session
Biogeochemical Cycles: From Local to Global Scales

Convenors: Phillippe Van Cappellen, Lei Chou, Pierre Regnier & Jean-Pierre Vanderborghtl.
Location: Oxford University Museum.

09:00 **Mackenzie F:**
Introduction

09:30 **Lehmann M, Bernasconi SM, Barbieri A & McKenzie JA:**
Carbon and Nitrogen Stable Isotope Tracing of Biogeochemical Processes in Eutrophic Lake Lugano, Switzerland

09:45 **Pfeifer K, Hensen C, Adler M, Wenzhöfer F, Strotmann B & Schulz HD:**
Modeling of Subsurface Calcite Dissolution Regarding Respiration and Re-oxidation Processes in the Equatorial Upwelling off Gabon

10:00 **Thamdrup B & Dalsgaard T:**
Quantification of Ammonium Oxidation to Dinitrogen Coupled to Manganese Oxide Reduction in Marine Sediment

10:15 **Dixit S & Van Cappellen P:**
Role of Detrital Matter in the Benthic Silica Cycle

10:30 **Furukawa Y, Bentley S & Lavoie D:**
How Infauna Metabolism and Burrow Water Irrigation Affect Early Diagenesis in Burrowed Aquatic Sediments – A Simulation Study Using Dynamic Bio-irrigation Model

10:45 **Boudreau BP & Choi J:**
Modelling Bioturbational Effects with a Particle Lattice-Automaton Model

11:00 **Haas J & DiChristina T:**
Thermodynamics of Reversible Proton Exchange and Metal Sorption onto *Shewanella putrefaciens*

11:15 **Zhang H, Davison W, Mortimer RJG & Krom MD:**
High Volumetric Resolution Reveals Inter-dependence of Metal Mobilisation in Sediments

11:30 **Helz GR:**
Rise of Recent Coastal Eutrophication Chronicled by Sedimentary Mo

11:45 **O'Kane JP & Regnier P:**
Current Developments and new Directions in Operational Biogeochemical Modeling: The "Blue" City Project as an Example

(Symposium E Continued in Session Tu:pm on Page 40)

Symposium G
Flow and Reaction of Fluids in Crust

Convenors: Marian Holness & Terry Seward.
Location: Zoology A.

09:00 **Manning CE & Newton RC:**
The Solubility of Quartz and Calcite in H_2O-NaCl Solutions at High Pressure: Constraints on Mass Transfer in the Deep Crust

09:15 **Zheng Y, Satir M & Metz P:**
Experimental Studies of Oxygen Isotope Exchange between Calcite and Tremolite in the Absence and Presence of Fluid

09:30 **Stefansson A & Seward TM:**
Gold(I) Complexing by Sulphide Ligands in Hydrothermal Solutions to 450 ºC at 500 bar

09:45 **Bailey E, Mosselmans F & Schofield P:**
An XAS Study of the pH and Temperature Dependence of Uranium Speciation in Acetate and Citrate Solutions

10:00 **Zakaznova-Iakovleva V & Seward T:**
The Hydrolysis of As(III) and Sb(III) in Hydrothermal Solutions to 300ºC

10:15 **Pokrovski G, Zakirov I & Roux J:**
Arsenic Speciation and Transport in Hydrothermal Vapour and Low-density Crustal Fluids

10:30 **Archibald SM, Migdisov AA & Williams-Jones AE:**
The Stability of Group IB (Cu, Ag, Au) Metals in Water Vapour at Elevated Temperatures and Pressures

10:45 **Collings M & Sherman D:**
Speciation of Cu^+ in Hydrothermal NaCl Brines from Molecular Dynamics

11:00 **Tagirov B, Schott J & Harrichoury J:**
Experimental Determination of the Stability of Aluminum-Fluoride Complexes to 300 ºC in Near-Neutral and Alkaline Solutions

11:15 **Ragnarsdottir KV:**
Aqueous Transport of Rare Earth, Alkaline and Alkaline Earth Elements with Organic Acids: Implications for Radionuclide Transport

11:30 **Lin H & Manning C:**
Experimental Determination of the Solubility of Diaspore in Pure H_2O at 0.5-2 GPa and 350-450 ºC

11:45 **Poitrasson F, Oelkers EH, Schott J & Montel J:**
Experimental Study of Monazite-Water Interaction from 21 to 300 ºC

(Symposium G Continued in Session Tu:pm on Page 41)

Symposium H
Weathering and Erosion: Mechanisms and Rates

Convenors: Mike Bickle, Niels Hovius & Mike Summerfield.
Location: Zoology B+C.

09:00 **White A, Bullen T, Schulz M, Blum A, Huntington T & Peters N:**
KEYNOTE A Model Describing Differential Rates of Feldspar Weathering in Granitic Regoliths

09:30 **Dia A, Benedetti M, Riotte J, Chabaux F, Boulègue J, Bulourde M, Chauvel C, Gérard M, Deruelle B & Ildefonse P:**
Chemical Weathering of Basaltic Lava Flows Suffering Extreme Climatic Conditions: The Water Geochemistry Record

09:45 **Sak P, Brantley S, Fisher D & Gardner T:**
A Diffusion Model for Weathering Rind Genesis in a Tropical Setting

10:00 **Galy A, Bar-Matthews M, Halicz L & O'Nions RK:**
Mg Isotope Fractionation During Speleothems Formation

10:15 **Allègre C, Dupré B & Gaillardet J:**
KEYNOTE Potamochemistry and the Gross Erosion Processes of Continents

10:45 **Levasseur S, Birck J & Allègre CJ:**
Sources of Dissolved Osmium in Rivers

11:00 **Vigier N, Bourdon B, Turner S & Allegre CJ:**
Timing of Chemical Weathering with U-decay Series Measured in Rivers

11:15 **France-Lanord C, Galy A, Gajurel A, Derry L, Evans M, Hurtrez J, Riotte J, Pierson-Wickmann A & Rose E:**
Erosion Processes and Fluxes in the Central Himalaya from Geochemical Constraints

11:30 **Chabaux F, Riotte J, Clauer N & France-Lanord C:**
U Fluxes of the Himalayan Rivers: Implications for the U Oceanic Budget

11:45 **Dalai TK, Trivedi J & Krishnaswami S:**
Re Geochemistry of the Yamuna River in the Himalaya

(Symposium H Continued in Session Tu:pm on Page 41)

Symposium J
Mantle Dynamics and Melting

Convenors: Tim Elliott & Erik Hauri.
Location: Clarendon Martin Wood.

09:00 **Büchl A, Brügmann G, Batanova VG, Hofmann A & Sobolev AV:**
Os Isotopic Heterogeneity in Mantle Peridotites from the Troodos Complex, Cyprus

09:15 **Snow JE & Hellebrand E:**
Major and Trace Elements Directly Contradict Melt Interaction Interpretations of MARK Area Os Isotopic and PGE Results

09:30 **Griselin M, Davies GR & Pearson DG:**
Variations in Melting Conditions along the Xigaze Ophiolite (Tibet): A Transition from Ridge to Arc Setting?

09:45 **Graham DW & Spera FJ:**
Spatial Statistics of Isotopic Variations along Mid-Ocean Ridges

10:00 **Galer SJG, Abouchami W & Macdougall JD:**
KEYNOTE Pb Isotopic Evidence for Coherent Mantle Domains beneath the East Pacific Rise

10:30 **Discussion:**

10:45 **Sims KW, Blichert-Toft J & Perfit M:**
KEYNOTE Melting beneath the East Pacific Rise, 9-10 N: Implications from Combined Nd-Hf-Sr-Th Isotopic Measurements

11:15 **Landwehr D, Blundy JD & Wood BJ:**
Partitioning of U and Th between low-Ca-Clinopyroxenes and Anhydrous Silicate Melts: Consequences for the Generation of U-Th-Diseqilibrium During Mantle Melting

11:30 **Hellebrand EW, Snow JE & Hofmann AW:**
Ghost Garnet Signature in Residual Abyssal Peridotites?

11:45 **Asimow P:**
Modeling Hydrous Melt Production and Fractionation at Mid-ocean Ridges: Application to the Azores Region

(Symposium J Continued in Session Tu:pm on Page 42)

Symposium M
Chemistry and Microbiology of Pollution

Convenors: Adrian Bath & Barbara Sherwood-Lollar.
Location: Earth Sciences.

09:00 **Banfield JF, Gihring TM, Taunton AE, Suzuki Y, Bond PL, Welch SA, Fowle D & Hamers RJ:**
KEYNOTE Geomicrobiological Controls on Metal Abundance and Speciation in the Environment

09:30 **Webster J, Lane V, Howarth R, Swedlund P & Saul D:**
Factors Influencing the Precipitation of Sulphate-rich Iron Oxides, and their Ability to Adsorb Trace Metals

09:45 **Fowle D, Welch S, Thompson-Ebert T & Banfield J:**
The Effects Biogenic Nanoscale Iron Oxyhydroxides on Metal Mobilities in Near-surface Water-rock Systems

10:00 **Fein J, Cahill J, Fowle D, Kemnore K, Bunker B & Boyanov M:**
Non-Metabolic Reduction of Cr(VI) by Bacterial Surfaces Under Nutrient-Absent Conditions

10:15 **Yee N & Fein J:**
Cd Adsorption onto Bacterial Surfaces: A Universal Adsorption Edge

10:30 **Templeton A, Trainor T, Traina S, Spormann A & Brown, Jr. G:**
Pb Speciation at Sapphire and Hematite Surfaces Associated with Bacterial Biofilms

10:45 **Discussion:**

11:00 **Stichbury MK, Bain JG, Gould W & Blowes DW:**
The Mechanisms of Release and Attenuation of Arsenic in a Gold Mine Tailings Impoundment

11:15 **Pickett D, Leslie B, Murphy W & Nugent M:**
Estimating Radionuclide Release from a Uranium Deposit Through Uranium-series Systematics in Carbonates and Opal

11:30 **Brydie J & Polya D:**
Environmental Geochemistry of Organic-Inorganic Interactions from Alluvial to Estuarine Systems: A Case Study of the River Conwy, North Wales

11:45 **Öhlander B & Holmström H:**
Geochemistry of the Tailings-Pond Water Interface in the Flooded Tailings Pond at Stekenjokk, Northern Sweden

(Symposium M Continued in Session Tu:pm on Page 42)

Symposium O
Open Symposium

Convenor: Nigel Harris.
Location: Inorganic Chemistry.

09:00 **Zheng Y, Gong B, Li Y, Wang Z & Fu B:**
Carbon Concentrations and Isotopic Ratios of Eclogites from the Dabie and Sulu Terranes in China

09:15 **Matsumoto T, Chen Y & Matsuda J:**
Noble Gases in Alpine-type Peridotites from the Horoman Ultramafic Complex, Northern Japan

09:30 **Kagi H, Lu R, Davidson P, Goncharov AF, Mao H & Hemley RJ:**
Evidence for Ice VI as an Inclusion in Cuboid Diamonds from High P-T Near Infrared Spectroscopy

09:45 **Yokochi R, Sano Y, Takahata N, Terada K, Ozima M & Chaves M:**
Constraints on the Origin of Carbonado from C and N Isotopes in Diamond Matrix and Studies of Inclusion Minerals

10:00 **Hatton C:**
Evidence for the Existence of the low $^{176}Hf/^{177}Hf$ Component in Majorite Garnets Included in Diamonds from the Monastery Kimberlite

10:15 **Wagner C, Mokhtari A, Deloule E & Chabaux F:**
Complex Clinopyroxene Assemblage in Carbonatite and Alkaline Xenoliths from Moroccan Camptonites: Evidence for an Open-System Evolution

10:30 **Appora I, Eiler JM & Stolper EM:**
Experimental Determination of Oxygen-isotope Fractionations between CO_2 Vapor and Soda-melilite Melt

10:45 **Widdowson M, Kelley S & Spicer R:**
Determinations for the Duration and Timing of the Deccan CFB

11:00 **Moreira M, Gautheron C & Allègre C:**
He-Ne Systematics in MORB, Loihi, Iceland and Pitcairn: Constraints on He Loss in OIB

11:15 **Temel A, Gourgaud A, Alici P & Bellon H:**
The Role of Asthenospheric Mantle in the Generation of Tertiary Basaltic Alkaline Volcanism in the Polatli-Ankara Region, Central Anatolia, Turkey: Constraints from Major-element, Trace-element and Sr-Nd Isotopes

11:30 **Ballentine CJ & Barfod DN:**
The Origin of Air-like Noble Gases in MORB and OIB

11:45 **Griffin WL, Wang X, Jackson SE, Pearson NJ, O'Reilly SY & Xu X:**
Tracking Magma Mixing: In-situ Hf-isotope Analysis of Zircons

(Symposium O Continued in Session Tu:PO on Page 47)

Symposium A
Terrestrial Planets and Meteorites

Convenors: Alex Halliday & Ed Young.
Location: Clarendon Lindemann.

14:00 **Porcelli D, Woolum D & Cassen P:**
Deep Mantle Rare Gases and Early Earth History

14:15 **Trieloff M, Kunz J, Clague DA, Harrison D & Allègre CJ:**
Noble Gases in the Loihi and Iceland Mantle Plume Sources and Constraints on Earth's Early History

14:30 **Harrison TM & Mojzsis SJ:**
Origin and Significance of ca. 3.85 Ga Zircons from West Greenland

14:45 **Gillet P, Chen M, El Goresy A & Dubrovinsky L:**
Hollandite in Shocked Meteorites: Clues for the Mineralogy of the Earth Mantle and Subducting Lithosphere

15:00 **El Goresy A, Gillet P, Chen M, Dubrovinsky L & Sharp TG:**
A New Natural Dense Polymorph of Rutile with the α-PbO_2 Structure in Shocked Gneisses from the Ries Meteorite Crater, Germany

15:15 **Fritz S & Chmiel G:**
Experimental Simulation of Chemical Weathering in the Hadean Eon by Anhydrous and Hydrous HCl Vapor

15:30 **THE F. W. Clarke Lecture**
Farquhar J, Bao H & Thiemens MH:
KEYNOTE Multiple-isotope Insights into the Earth's Earliest Sulfur Cycle

Symposium C
Subduction Zone Processes

Convenors: Jon Blundy, Chris Hawkesworth & Dave Rubie.
Location: Clarendon Townsend.

14:00 **Brophy J:**
Sector-zoned Augite Megacrysts in High Alumina Basalts with Implications for the Conditions of Basalt Crystallization and the Generation of Calc-alkaline Series Magmas

14:15 **Reid MR & Coath CD:**
Magma-Chronology: High Silica Rhyolite

14:30 **Charlier B & Zellmer GF:**
U-Th Dating of Oruanui Zircons, Taupo Volcanic Zone: Some Remarks on the Interpretation of U-series Mineral Isochron Data from Systems with Prolonged Crystallisation Histories

14:45 **Thomas L, Blake S, Hawkesworth C, van Calsteren P & Jones S:**
Short Crystal Residence Times and Complex Magmatic Evolution of the 3000 km^3 Youngest Toba Tuff

15:00 **Rutherford MJ & Hammer JE:**
KEYNOTE Ascent and Crystallization of Magma beneath Arc Volcanoes

15:30 **Rose E, Shimizu N, Layne G & Grove T:**
Trace Element and Isotopic Characteristics of Primitive Melt Inclusions from Mt. Shasta, California

15:45 **Ruiz J, Chesley J, Righter K & Ferrari L:**
A View of Mantle Metasomatism Versus Crustal Contamination from the Trans Mexican Volcanic Belt, Mexico

Symposium D
Rapid Climate Change (Continents/Oceans)

Convenors: Edouard Bard & Frank McDermott.
Location: Physical Chemistry.

14:00 **Cacho-Lascorz I, Grimalt JO, Sierro FJ, Shackleton N, Canals M & Flores J:**
Control of the Dansgaard-Oeschger Climatic Variability Over the Mediterranean Thermohaline Circulation

14:15 **Sanchez Goñi MF, Turon J, Cacho I, Grimalt J, Sierro FJ, Flores JA & Shackleton N:**
Were the Iberian Peninsula Environmental Changes Triggered by the Marine Changes of the Last Glacial Period?

14:30 **Bard E:**
Alkenone Temperature of the Pacific Warm Pool During the Last Two Glacial Cycles

14:45 **Mangini A & Lomitschka M:**
Deep Sea Corals Evidence Periodic Reduced Ventilation of the N. Atlantic During the LGM/Holocene Transition

15:00 **Robinson LF, Henderson GM & Slowey NC:**
U-Th Dating of Marine Isotope Stage Seven in Bahaman Slope Sediments

15:15 **Esat T & Yokoyama Y:**
Correlated Uranium and Sea-Level Fluctuations in Late Quaternary Oceans

15:30 **Yokoyama Y, Esat T, Lambeck K & Fifield K:**
Last Ice Age Millennial Scale Climate Changes Recorded in Huon Peninsula Corals

15:45 **Stirling C, Esat T, Lambeck K, McCulloch M, Blake S, Lee D & Halliday A:**
Northern Hemisphere Insolation Forcing of the 330,000 Year Sea-Level Highstand?

(Symposium D Continued in Session Tu:PO on Page 43)

Symposium E
Biological Geochemistry

Convenors: Matthew Collins, Derek Lovely & Rob Raiswell.
Location: Oxford University Museum.

14:00 **Elskens M, Cattaldo T, Cardinal D, Baeyens W & Dehairs F:**
Assessing Flux Rates from Isotope Dilution Experiments and Numerical Modelling: Results for ^{15}N and ^{135}Ba Tracer Experiments

14:15 **Burkill P & Taylor A:**
What Level of Biology is Required to Model Marine Biogeochemical Cycling Globally?

14:30 **Soetaert K, Herman P, Middelburg J & Lamy F:**
Coupled Food-web and Bacterial-loop Modelling of a Lagrangian Experiment off the Iberian Margin

14:45 **Chou L, Roevros N & Paucot H:**
Geochemistry of Particulate Matter in the Northeast Atlantic Margin

15:00 **Lancelot C, Hannon E, Sylvie B, Probst G, Goosse H, Schoemann V & de Baar H:**
Modeling the Present-day CO_2 Drawndown in the HNLC Southern Ocean

15:15 **Crucifix M, Joos F & Berger A:**
Modelling the Impacts of a Massive Freshwater Discharge in the North Atlantic Ocean on the Global Carbon Cycle

15:30 **Mackenzie F & Guidry M:**
Apatite Weathering and the Phanerozoic Phosphorus Cycle

15:45 **Lerman A, Mackenzie FT & Ver LMB:**
Nitrogen and Phosphorus Controls of the Carbon Cycle

(Symposium E Continued in Session Th:am on Page 50)

Symposium G
Flow and Reaction of Fluids in Crust

Convenors: Marian Holness & Terry Seward.
Location: Zoology A.

14:00 **Candela P, Frank M & Piccoli P:**
Quantitative Modeling of Magmatic Volatile Phase Exsolution

14:15 **Schwandner FM, Gize AP, Seward TM, Hall K & Dietrich VJ:**
Natural Halocarbon Compounds in Volcanic Gases

14:30 **Prinzhofer A, Battani A, Ballentine C, Deville E, Herbin JP & Houzay JP:**
Gas Geochemistry of Mud Volcanoes from Trinidad: Surface Evidence of Deep Gas Reservoirs, Modified by Vertical Migration

14:45 **Kinnaird J, Kruger F & Cawthorn RG:**
Fluorite and Fluids: Late Magmatic Radiogenic Behaviour in the Acid Phase of the Bushveld Complex

15:00 **Cardellini C, Chiodini G, Frondini F, Giaquinto S, Parello F & Peruzzi L:**
Quantification of Diffuse Carbon Dioxide Earth Degassing from Central Apennine (Italy): The Carbon Mass Balance in Regional Aquifers Approach

15:15 **Ballentine CJ & Cassidy M:**
Identifying the Mechanism and Character of Magmatic CO_2 Emplacement into Sedimentary Structures II: Resolving Magmatic He, Ne and Ar in Harding County (New Mexico) CO_2 Well Gases

15:30 **Cathles L, Shosa J, Losh S & Meulbroek P:**
Some Aspects of Multiphase Fluid Flow, Chemical Mass Transport, and Alteration in Sedimentary Basins

15:45 **Hanor JS:**
Siliciclastic Diagenesis and Quartz Precipitation Driven by Mixing of Rock-Buffered Fluids of Differing Chlorinity

(Symposium G Continued in Session Mo:PO on Page 29)

Symposium H
Weathering and Erosion: Mechanisms and Rates

Convenors: Mike Bickle, Niels Hovius & Mike Summerfield.
Location: Zoology B+C.

14:00 **Ruddiman W:**
KEYNOTE Understanding the Links between Tectonics and Climate Change: Are We at an Impasse?

14:30 **Oxburgh R:**
Uplift, Chemical Weathering, Climate and Atmospheric CO_2: Connections and Disconnections

14:45 **Bickle M:**
Orogenesis, Erosion and the Long-Term Carbon Cycle

15:00 **Huh Y, Birck JL & Allègre CJ:**
Osmium Isotopes and Continental Weathering

15:15 **Ravizza G, Norris R & Blusztajn J:**
Osmium Isotope Evidence of Increased Chemical Weathering Rates During the Late Paleocene Thermal Maximum

15:30 **Aléon J, Chaussidon M, Marty B, Jaenicke R & Schütz L:**
$^{18}O/^{16}O$ Ratios of Quartz Grains as a Proxy for Source Areas of Atmospheric Detritic Dust: The Case of the Eolian Erosion of the Sahara Desert

15:45 **Frogner P, Gíslason S & Óskarsson N:**
Fertilization Potential of Volcanic ash in Ocean Surface Waters

(Symposium H Continued in Session Tu:PO on Page 43)

Symposium J
Mantle Dynamics and Melting

Convenors: Tim Elliott & Erik Hauri.
Location: Clarendon Martin Wood.

14:00 **Klemme S & O'Neill H:**
Cr-Spinels in the Earth's Mantle: Thermodynamics and Phase Relations at High Pressures and High Temperatures

14:15 **Hirschmann M & Pertermann M:**
KEYNOTE Application of MELTS to Pyroxenite Partial Melting in Basalt Source Regions

14:45 **Francis D:**
Is Primitive Mantle a Proterozoic Feature of the Earth?

15:00 **Gibson S, Thompson R & Dickin A:**
Heterogeneous Nature of Adiabatic Decompression Melts Generated in Upwelling Mantle Plume Heads

15:15 **Green DH, Eggins S, Falloon T & Yaxley G:**
Primary Magmas, Mantle Temperatures and Buoyancy Plumes

15:30 **Nikogosian I, Elliott T & Touret JL:**
Evolution of Parental Magmas beneath a Thick Lithosphere, La Palma, Canary Islands: Study of Melt, Fluid and Crystal Inclusions

15:45 **Chavagnac V, Bowring SA, Parman SW & Carlson RW:**
Nd-Hf Isotope Constraints on the Petrogenesis of Al-Depleted and Al-Undepleted Komatiites, the Onverwacht Group, South Africa

(Symposium J Continued in Session Tu:PO on Page 45)

Symposium M
Chemistry and Microbiology of Pollution

Convenors: Adrian Bath & Barbara Sherwood-Lollar.
Location: Earth Sciences.

14:00 **McGill RA, Pearce J, Fortey NJ, Watt J, Parrish RR, Young SD & Thornton I:**
Contaminant Source Apportionment in Brownfield Soils by Combined SEM Image Analyses and Plasma Ionisation, Multi-Collector Mass Spectrometry (PIMMS)

14:15 **Hudson-Edwards KA, Macklin MG, Brewer P, Coulthard TJ, Howard AJ, Nielsen MF, Turner J, Jamieson HE & Remenda VH:**
Geochemistry of Rio Guadiamar Sediments Following the April 1998 Spanish Aznalcollar Mine Tailings dam Failure and Subsequent Clean-up

14:30 **Charlet L & Peretyashko T:**
Hg and CO_2 Production Mechanism in the Petit Saut dam Reservoir, French Guyana: Fe^{2+} as key Actor

14:45 **Wesolowski DJ, Xiao C & Palmer DA:**
Metal Complexation Studies in Low-Temperature, Acid-Sulphate Waters Using Mercury/Mercurous Sulphate Concentration Cells

15:00 **Evans K & Banwart S:**
Controls on Iron/Sulphur Ratios on Spoil Heaps and in Mineworkings

15:15 **Burke S & Banwart S:**
The Effects of pH on Surface-Catalysed Oxidation of Aqueous Fe(II)

15:30 **Stephens S, Alloway B, Carter J & Parker A:**
Dredged Canal Sediments: Changes in Metal Leaching Behaviour on Drying and Oxidation

15:45 **Hodson M, Valsami-Jones E & Cotter-Howells J:**
Remediation of Heavily-metal-contaminated Soils by Bone Meal (Phosphate) Additions

(Symposium M Continued in Session Tu:PO on Page 46)

Symposium D

Rapid Climate Change (Continents/Oceans)

Convenors: Edouard Bard & Frank McDermott.
Location: Poster Hall.

1 **Ainsaar L, Martma T & Meidla T:**
The Mid-Caradoc Carbon Isotopic Event and its Expression in Siljan District, Central Sweden-Offshore Area of the Balto-scandian Palaeobasin

2 **Asahara Y, Tanaka T, Kamioka H, Nishimura A & Yamazaki T:**
Regional and Temporal Variations of $^{87}Sr/^{86}Sr$ and $^{143}Nd/^{144}Nd$ Ratios in the North Pacific Sediments and their Significance on Paleoclimatic Variation in the Asian Continent

3 **Frank N, Hemming G & Goldstein S:**
Neogene Pb- and Nd-Isotope Composition of a Mn Nodule from the South Pacific Ocean

4 **Haley B & Klinkhammer G:**
Developing Rare Earth Elements as a Paleoceanographic Proxy: Separating Primary and Diagenetic Influences

5 **Kashiwagi H, Shikazono N & Tajika E:**
Global Carbon Cycle Model in the Cenozoic

6 **Lüschen H, Schnetger B, Brumsack H & Paul J:**
Trace Element Distribution in Palaeozoic Black Shales: "Kupferschiefer" (Germany) and Exshaw Formation (Canada)

7 **Oezen D, Geyh MA, Heine K & Thiedig F:**
Absolute Chronology of Wet Climate Periods in the Present Arid Parts of Northern and Southern Africa

8 **Ostertag-Henning C:**
Atmospheric and Oceanographic Circulation Changes in the Northeast Pacific Concurrent with Heinrich Events: Evidence from Trace Metals and Heavy Minerals

9 **Pentecost A, Spiro B & Numez R:**
Palaeoenvironmental Interpretation of the Early Postglacial Sedimentary Record of a Marl Lake

10 **Vennemann TW, Vdovic R & Thoral S:**
Clay Minerals of the North Alpine Molasse Sediments – Archives of Alpine Upliftment and Climatic Change?

11 **Wehausen R & Brumsack H:**
Major and Minor Element Signatures in Pliocene South China Sea Sediments: A Response to East Asian Monsoon Cyclicity

12 **Weldeab S, Emeis K & Christoph H:**
High Resolution Geochemical Investigation of Selected Late Pleistocene Sapropels of the Mediterranean Sea: Productivity Versus Preservation

Symposium H

Weathering and Erosion: Mechanisms and Rates

Convenors: Mike Bickle, Niels Hovius & Mike Summerfield.
Location: Poster Hall.

1 **Aplin A & Hill D:**
River Colloids: Agents or Reflections of Chemical Weathering in Temperate Uplands?

2 **Aubert D, Probst A, Stille P & Viville D:**
Evidence of Hydrological Conditions Influence on Sr Behaviour in Streamwaters. The Strengbach Catchment Case Study (Vosges Mountains, France)

3 **Aubert D, Stille P & Probst A:**
REE Fractionation During Granite Weathering and Removal by Waters and Suspended Loads

4 **Bunbury J, Bickle M, Ahmad T, Fairchild I, Harris N & Chapman H:**
Experiments to Investigate the Contribution of Silicate Weathering to the Dissolution of Himalayan Rocks

5 **Croxford S, Banwart S & Cripps J:**
Generation of Acidity and Alkalinity from Different Coal Measure Lithologies Under Saturated Conditions

6 **Dequincey O, Chabaux F, Sigmarsson O, Clauer N, Liewig N & Leprun J:**
Formation and Evolution of Weathering Profiles: Combined Study of Trace Elements, Sr Isotopes and U-Th Disequilibria

7 **Dietzel M & Böhme G:**
Dissolution of Gibbsite in Open and Closed Systems: Experimental Data and a New Kinetic Approach

8 **Domènech C & Ayora C:**
Weathering of the Pyritic Sludge Remaining in the Soil After the Aznalcóllar Accident (SW Spain)

9 **Gaillardet J, Millot R, Dupre B & Allègre C:**
River Geochemistry and Chemical Weathering of Shields: From Subarctics to Tropics

10 **Galy A & France-Lanord C:**
Higher Erosion Rates in the Himalaya: Geochemical Constraints on Riverine Fluxes

11 **Gislason SR & Oelkers EH:**
Chemical Weathering Rate of Basaltic Glass as a Function of Temperature, pH, Organic Acids and Solution Composition

12 **Gruau G, Dia A, Olivie-Lauquet G & Serrat E:**
The Effects of Organic Matter and Seasonal Redox Dynamics on Chemical Weathering: Constraints from Natural Wetland Studies

13 **Jarc S & Mirtic B:**
The Study of Weathering Effects on the Slovenian Limestones by SEM

14 **Tapia J & Loubet M:**
Platinum Group Elements (PGE) Mobility Under Tropical Weathering Conditions

15 **Ji H, Wang S, Ouyang Z & Zhou D:**
Geochemistry and Nd-Sr Isotopic Composition of Carbonate Rocks and their Insoluble Materials: Implications for the Origin of Carbonate Rocks and the Average Chemical Composition of the Upper Continental Crust

16 **Jung HG, Rammlmair D, Bosecker K & Tufar W:**
Behavior of a Freiberg Mining Waste Dump During Leaching Processes

17 **Le Gal X & Crovisier JL:**
Role of Zeolites Crystallisation in the Kinetic of Volcanic Glass Corrosion

18 **Leal Pacheco FA & Van der Weijden CH:**
Mineral Weathering Rates and Groundwater Recharge Rates

19 **Ma Y, Liu C & Huo R:**
Strontium Isotope Systematics During Chemical Weathering of Granitoids: Importance of Relative Mineral Weathering Rates

20 **Mason TFD, Widdowson M, Ellam RM & Oxburgh R:**
Isotopic Variability of Sr and Nd in Lateritic Deposits from the Deccan Traps, India: Evidence for an Input of Aeolian Material to the Laterites

21 **Meléndez WG, Rodríguez LM & Ramírez AJ:**
Quantification of non Crystaline Material in Bauxites

22 **Millot R, Gaillardet J, Dupré B & Allègre CJ:**
Silicate Weathering Rates Inferred from Sr Isotopes Systematics in the Mackenzie River Basin, Canada

23 **Oberholzer P, Baur H, Denton GH, Marchant DR, Schäfer JM, Schlüchter C, Wieler R & Lewis A:**
Minimum Age and Evolution of the Buried Ice in Beacon Valley, Antarctica, Derived from In Situ Cosmogenic Noble Gases

24 **Oliver LS, Harris N, Dise N & Bickle M:**
The Effect of Lesser Himalayan Calc-Silicates on the $^{87}Sr/^{86}Sr$ of the Bhote Kosi River of Nepal – Implications for Himalayan Weathering, the Marine $^{87}Sr/^{86}Sr$ Record and Global Climate

25 **Pierson-Wickmann A, Reisberg L & France-Lanord C:**
Another Source of Radiogenic Os in the Himalayas: The Lesser Himalaya Carbonates

26 **Pokrovsky OS, Schott J & Pokrovski G:**
Dissolved Major and Trace Elements in Two Contrasting Rivers and their Estuarine Zones of the White Sea (Karelia, Russia)

27 **Quilici H, Picke N, Probst A & Loubet M:**
Pb Isotopes as Tracers of Anthropogenic Inputs and Weathering Process (Strengbach Catchment, Vosges Mountains, France)

28 **Rahman Mia A:**
Soil Erosion Processes in the Hill Areas of Bangladesh

29 **Reddy MM & Doe BR:**
Marble Dissolution by Acid Rain and Sulphur Dioxide

30 **Sharma A & Rajamani V:**
Weathering of Amphibolite and Mobility of Elements Under Semi-arid Conditions, Southern India

31 **Singh SK, France-Lanord C & Reisberg L:**
Os, Sr & Nd Isotopic Constraints on the Sources of Sediments of the Brahmaputra River System

32 **Skidmore M, Tranter M, Grust K & Jones I:**
Chemical Weathering Rates and Solute Fluxes from Catchments of the Greenland Ice Sheet

33 **Stark C, Driscoll N, Weissel J, Restrepo C & Hovius N:**
The Role of Biomass-wasting in the Carbon Cycle

34 **Thomas B, Lippolt HJ & Pidgeon RT:**
U-Th-He Dating of Ironstones – Examples from the Hamersley Iron Province and Darling Range Laterites from Western Australia

35 **Tosiani T, Loubet M, Dupre B, Marrero S, Berger G, Yanes C & Ramirez A:**
Geochemical Characteristics of River Fluxes in the Cuyuni Tropical Basin (Southern Venezuela): Importance of the Organo-colloidal Control on Elements Behavior

36 **West AJ, Bickle MJ, Bunbury JM & Fairchild IJ:**
Re-assessing the Carbonate Contribution to High Himalayan Dissolved Load

37 **White N, Pringle M, Garzanti E, Najman Y, Bickle M, Friend P, Ashok M & Burbank D:**
Ar/Ar Single Crystal White Mica Ages for Himalayan Erosion, Exhumation and Provenance Studies

38 **Ziegler K, Chadwick OA, Kelly EF, Brzezinski MA & DeNiro MJ:**
Silicon Isotope Fractionation During Weathering and Soil Formation: Experimental Results

Symposium J
Mantle Dynamics and Melting

Convenors: Tim Elliott & Erik Hauri.
Location: Poster Hall.

1 **Ashchepkov I, Vladykin N, Yuri O, Anoshin G, Gerasimov P & Saprykin A:**
Thermal Gradient, Mantle Layering and Geochemistry beneath Aldan Shield According to the Kimberlitic Deep Seated Disintegrated Inclusions

2 **Beccaluva L, Coltorti M, Milani L, Salvini L, Siena F & Tassinari R:**
Tertiary Nephelinite to Tholeiite Magma Generation in the Veneto Volcanic Province, Southern Alps

3 **Berly T, Arculus R, Lapierre H & Eggins S:**
Peridotites, Gabbros and Basalts Exposed on San Jorge, Santa Isabel and Choiseul Islands (Solomon Islands): Accretion of Ontong Java Plateau's Fragments or Exhumation of arc Related Rocks?

4 **Berry AJ & O'Neill HS:**
The Oxidation State of Chromium in Silicate Glasses as a Function of Oxygen Fugacity, Composition, Temperature, and Pressure

5 **Blundy J, Dalpe C & Higgins M:**
The Composition and Distribution of Trapped Melt in the Kiglapait Layered Intrusion

6 **Bouhedja M, Deloule E, Reisberg L & Wagner C:**
Evidence for Equilibrium Crystallization of Amphiboles and Clinopyroxenes in Mantle-Modally-Metasomatized Peridotite Xenoliths from French Massif Central

7 **Buchan C, Pfänder J, Brewer T, Cunningham D & Windley B:**
Trace Element and Nd Isotope Characteristics of the Bayankhongor Ophiolite, Central Mongolia: Heterogeneous Mantle or Single Contaminated Source?

8 **Coltorti M, Beccaluva L, Bonadiman C & Siena F:**
K-rich Glasses from the Oceanic Mantle of Cape Verde

9 **Coogan L & MacLeod C:**
Magma Plumbing and Melt Aggregation beneath Mid-Ocean Ridges

10 **Davies GR, Francalanci L, Tommasini S & Conticelli S:**
Complex Magma Chamber Dynamics at Stromboli During the 20th Century

11 **Downes H:**
Multiple Origins for Mantle Pyroxenites: Subducted Ocean Crust and/or Cumulates from Asthenospheric Magmas

12 **Eisele J, Sharma M, Blichert-Toft J, Devey CW & Hofmann AW:**
Os, Hf, Nd and Sr Isotope Analyses from the Pitcairn Hotspot: Constraints on the Composition of EM1

13 **Green MG:**
Submerged Early Archean Flood Volcanism: Geochemical and Geological Evidence from the Pilbara Craton, Australia

14 **Grönvold K, Oskarsson N, Sigurdsson G & Sverrisdottir G:**
Osmium Isotopes in Ferromagnesian Mineral and Basalts from Iceland Measured by MC-IPC-MS Triple Ion Counting

15 **Hanan BB, Pyle DG, Blichert-Toft J, Christie DM & Albarède F:**
Ultra-depleted Hafnium Isotopes from Australian-Antarctic Discordance MORB

16 **Izokh A, Gibsher N, Malkovets V & Travin A:**
Argon-Argon Dating of Camptonite Dikes of the Sangilen, Southeastern Tuva, Russia

17 **Lapierre H, Bosch D, Tardy M & Struik L:**
Paleozoic-Triassic Plume-derived Magmas in the Canadian Cordillera Play a Key Role in Continent Growth

18 **Malkovets V, Travin A, Reutsky V, Shevchenko D & Litasov K:**
Argon-Argon Dating of Basanites from Volcanic Pipes of the Minusa Region SW of the Siberian Craton

19 **Malkovets V, Ionov D, Agashev A, Litasov Y, Orihashi Y, O'Reilly S & Griffin W:**
Structure and Composition of the Mantle beneath the Minusa Region SW of the Siberian Craton: A Sr-Nd Isotope and Trace Element Study

20 **Mamberti M, Lapierre H, Bosch D, Eggins S, Jaillard E, Hernandez J & Polvé M:**
Remnants of the Cretaceous Colombian Oceanic Plateau in Ecuador: Evidenced by the Petrology and the Geochemistry of Picrites and Mg-rich Basalts

21 **Mattielli N, Weis D, Blichert-toft J & Frey FA:**
The Kerguelen Plume Source Characterized by Hf Isotopes

22 **O'Neill H, Berry A, Shelley M & Foran G:**
In-situ Determination of Cation Oxidation States in Silicate Melts at Temperatures to 1750 K

23 **Paquin J, Altherr R & Vennemann TW:**
Li Metasomatism During Exhumation of the Ultrahigh-pressure Garnet Peridotite from the Alpe Arami, Central Alps (Switzerland)

24 **Perini G, Cebria JM & Ruiz JL:**
Evidences of Mantle Heterogeneity beneath Spain from post-Hercynian Magmatism in the Variscan Belt

25 **Pfänder J, Jochum KP, Todt W & Kröner A:**
Tracing Ancient Mantle Sources: Origin of Gabbros and Peridotites from the ATC Ophiolite in Central Asia – Petrological, Trace Element and Isotopic Constraints

26 **Polat A, Regelous M, Hofmann AW & Appel PWU:**
Geochemistry and Neodymium and Strontium Isotope Systematics of the 3.7-3.8 Ga Pillow Basalts of the Isua Greenstone Belt, Southwest Greenland

27 **Simon NSC, Davies GR, Pearson DG, Mason PRD & Irvine GJ:**
Multistage Metasomatism and Mineral Growth of Cratonic Mantle Recorded by a Glass-bearing Garnet Lherzolite Xenolith from Letseng-la-Terae, Lesotho

28 **Sobolev V, Sobolev A, Rocholl A & Hofmann A:**
Comparative Study of Koolau and Mauna Loa Primitive Melts: Investigation of Melt Inclusions in Olivines

29 **Sylvester PJ, Kamenetsky VS & McDonough WF:**
Melt Inclusion Evidence for Komatiite Genesis in the Gorgona Plume

30 **Thompson RN & Gibson SA:**
Extremely Magnesian Olivines in Phanerozoic Picrites Signify Transient High Temperatures During Mantle Plume Impact

31 **Wagner C:**
Glasses in Mantle Xenoliths from Massif Central, France. Implications for Mantle Processes

32 **Zanetti A, Oberti R, Piccardo GB & Vannucci R:**
Light Lithophile (Li, Be and B), Volatile (H, F and Cl) and Trace Elements Composition of Mantle Amphiboles from Zabargad Peridotite: Insights into the Multistage Subsolidus Evolution of Sub-continental Mantle During Red Sea Rifting

33 **Zhou X, Wilde S, Sun M, Chen S & Zhang G:**
Timing Constraint on Multiple Events of Subcontinental Lithosphere: Inferred from SHRIMP U/Pb Ages of Lower Crust Xenoliths, North China Craton

34 **Zou H & Reid M:**
Mathematical Modeling of Trace Element Fractionation During Incongruent Dynamic Melting

(Symposium J Continued in Session Th:am on Page 52)

Symposium M
Chemistry and Microbiology of Pollution

Convenors: Adrian Bath & Barbara Sherwood-Lollar.
Location: Poster Hall.

1 **Aiuppa A & D'Alessandro W:**
Rainwater Chemistry in an Active Volcanic Area – Mt. Etna, Italy

2 **Akopova G, Vlasenko N & Sharikhina L:**
Chemical Pollutants – Eco-toxicants in the Environment of the

3 **Brown K, McKenzie E, Cady S & Campbell K:**
A Survey of Trace Metals and Microbiota in Geothermal Fluids and Sinter from the Taupo Volcanic Zone, New Zealand

4 **Buckby T, Black S & Coleman M:**
Processes of Persistent Heavy Metal Contamination in the Río Tinto, South West Spain

5 **Druschel G, Hamers R & Banfield J:**
Oxidation Kinetics of Tetrathionate at low pH: Implications for Pyrite Oxidation Mechanisms and Microbial Ecology in Acid Mine Drainage Environments

6 **Farrelly D, Smith S & Mason JR:**
The Bio-availability of Polycyclic Aromatic Hydrocarbons in Soils

7 **Ferreux J, Steinmann M, Bertrand C, Dubois C & Paquette Y:**
Mobilisation of Arsenic in Mine Tailings Subjected to Spontaneous Combustion

8 **Gaskova O & Bortnikova E:**
Chemical Predictive Modelling of Trace Elements Leaching from As-bearing Tailing Impoundment (Khovu-Aksy, Rep. Tuva, Russia)

9 **Gritsenko A, Akopova G, Aighbulatov N & Amelin A:**
Impact of the Constraction and Maintenance of the Underwater Gas Main-Line

10 **Hallbeck L, Eriksson S & Katarina A:**
Determination and Anaerobic Degradation of Diesel Components in Crystalline Rock and Groundwater

11 **Irabien MJ, Yusta I, Zabaleta A & Alvaro AI:**
Record of Heavy Metal Pollution on the Bilbao Estuary, Northern Spain

12 **McArthur J, Ravenscroft P & Safiullah S:**
Mechanisms of Arsenic Pollution of Groundwater in Sedimentary Aquifers: An Example from the Ganges-Meghna-Brahmaputra Deltaic Plain of Bangladesh

13 **Osenbrueck K, Heidinger M, Ertl S & Eichinger L:**
Application of Compound-Specific ^{13}C Isotope Investigations of Chlorinated Hydrocarbons at Polluted Groundwater Sites

14 **Prommer H, Woolhouse KJ, Barry DA & Davis GB:**
Reactive Multicomponent Transport Modelling of Contaminated Aquifers: Natural Attenuation of a Petroleum Hydrocarbon Plume Under Sulphate-reducing Conditions

15 **Quigley SP, Banwart SA & Lerner DN:**
Oxidative Capacity of the Geosphere

16 **Roy S & Négrel P:**
Lead Contents and Lead Isotopes in the Labile Fraction of Sediments in Silicate-Drained Rocks: Evidence in Small Watersheds in the Massif Central (France)

17 **Schneider P:**
In-situ Treatment of Mining Waste Waters Using Fe(0) and Fe/Mn-Compounds

18 **Shah NW & Banwart SA:**
Natural Attenuation of Organic Pollutants in Groundwater: Anaerobic Biodegradation of Phenol Under Sulphate-Reducing Conditions

19 **Teutsch N, Lyakhovsky V & Erel Y:**
Penetration Rates of Pb in the Soil Calculated by a Numerical Model

20 **Thornton S, Quigley S, Banwart S & Lerner D:**
Characterising Redox Processes in a Chemically Stressed Contaminated Aquifer Using Dissolved H_2

21 **Tomschey O:**
Trace Elements in Some Hungarian Brown Coals: Concentrations, Distributions and Bioavailability

22 **Valentino GM:**
Behavior of Toxic Elements in Hydrothermal Systems: As and Hg in the Thermal Waters of the Phlegraean Fields (Italy)

(Symposium M Continued in Session Th:am on Page 52)

Symposium O
Open Symposium

Convenor: Nigel Harris.
Location: Poster Hall.

1 **Barling J, Goldstein SL & Anbar AD:**
Hf-Isotopes from Heard Island: A HIMU-MORB Connection?

2 **Barnes S & Maier WD:**
Platinum-Group Element and Chalcophile Element Distribution in the Merensky Reef, Western Bushveld Complex

3 **Davis DW, Amelin Y, Nowell G & Parrish R:**
Hf Isotopes in Zircon and Archaean Crustal Growth in the Western Superior Province

4 **Frick LR, Lambert DD & Hoatson DM:**
Magma Sources and Ore Formation in the Radio Hill Complex, West Pilbara Craton: A Re-Os Isotope Study

5 **Rajesh HM:**
Characterization and Origin of an Ultrapotassic Aluminous A-type Granitoid from Southwestern India

6 **Kinnaird J, Ixer R & Barreiro B:**
Contrasting Sources for Cu-polymetallic and Pb-Zn Mineralisation in Ireland: Constraints from Lead Isotope Modelling

7 **Meli S & Sassi R:**
Some Thoughts on the Geochemistry of the “Unique” Sample of the “Venice Granodiorite” (Northern Italy)

8 **Musashi M & Eggenkamp HG:**
Cl Isotope Compositions of Fumarolic Gas from a Japanese Volcanic Island

9 **Robertson REA, Jackson T, Scott P & Sparks R:**
Petrology and Mineralogy of Volcanic Centres in Southern St. Vincent, West Indies

10 **Sushchevskaya N, Belyatsky B & Nikulin V:**
Geochemical Heterogeneity of the Magmatism from the Ninetyeast and Investigator Ridges

11 **Tepley III FJ, Davidson JP & Palacz Z:**
The Role of Magmatic Versus Subsolidus Processes in Determining Mineral-Scale Isotopic Characteristics of the Rum Intrusive Complex

12 **van der Zander I, Bruegmann G, Hofmann AW, McKenzie D & Mertz DF:**
Osmium Isotope Signatures of Picrites and Basalts from Theistareykir (North Iceland)

13 **Varga A, Szakmány G & Józsa S:**
Geochemistry and Provenance of Carboniferous Sandstones: A Case Study in Boreholes and Redeposited Pebbles in Miocene Conglomerate (Tisza Unit, S Hungary)

14 **Varol E, Temel A, Gourgaud A & Bellon H:**
Petrology and Geochemistry of Balkuyumcu-Ankara Volcanics, Central Anatolia, Turkey

15 **Willan RC, Boyce AJ & Fallick AE:**
Silicification, Advanced-Argillic and Porphyry-Style Alteration in Basalts, South Shetland Island Volcanic Arc: Formation from Geothermal, Magmatic-Hydrothermal and Intrusive Systems

16 **Yamaguchi KE, Bau M & Ohmoto H:**
Constraints from REEs on the Processes and Environments for Precambrian Banded Iron Formations: Revaluation of the Data and Models

(Symposium O Continued in Session Th:am on Page 53)

Wednesday, 6th September, 09:00 - 12:30

PLENARY SESSION

Odeon Cinema, Magdalen Street, Oxford.

09:00 The Award of the F. W. Clarke Medal to James Farquhar
(Citation: Mark Thiemens)

The Award of the C. S. Patterson Medal to Edward A Boyle
(Citation: Harry Elderfield)
The C. S. Patterson Lecture
"The evolution of Anthropogenic Lead in the Ocean"

10:00 The Gast Lecture: Jillian Banfield
"Biomineralization and Geochemical Cycling in Subsurface Solutions: An Example"

10:30 Break

11:00 Induction of the New EAG and GS Fellows

The Award of the 1999 Houterman Award to Gleb Pokrovski
(Citation: Vala Ragnarsdottir)
The Award of the 2000 Houterman Award to Erik Hauri
(Citation: Al Hofmann)
Announcement of the Award of the Urey Medal to Donald DePaolo

11:30 The Award of the V.M. Goldschmidt Medal to Geoffrey Eglinton
(Citation: Edouard Bard)
The V. M. Goldschmidt Lecture
"Biomarker Molecules"

Symposium B
Chemistry and Dynamics of the Earth

Convenors: George Helffrich & Bernie Wood.
Location: Clarendon Lindemann.

09:00 **Rehkämper M, Schmalzl J & Hansen U:**
The Effect of Plate Dynamics on the Convective Mixing of Chemical Heterogeneities in the Earth's Mantle

09:15 **Phipps Morgan J, Morgan WJ & Ravine MA:**
'Missing' Dynamic Topography: Geodynamic Evidence Against Deeply Layered Mantle Convection

09:30 **Kerrich R & Polat A:**
Nb/Ta Variation in Ocean Plateau Basalts, Archaean to Present: The Mantle as a Reservoir of Continental Crust

09:45 **Masters G:**
KEYNOTE A Seismological View of Geochemical Reservoirs in the Mantle?

10:15 **Stachel T, Harris JW & Brey GP:**
Kankan Diamonds (Guinea) – Messengers from an Enriched Layer at the top of the Lower Mantle

10:30 **Thomas C & Kendall J:**
The Structure of the Lowermost Mantle

10:45 **Discussion:**

11:00 **Gasperini D, Blichert-Toft J, Bosch D, del Moro A, Macera P, Télouk P & Albarède F:**
Ancient Oceanic Plateaus in the Source of EMI Basalts: Evidence from Sardinian Basalt Geochemistry

11:15 **Boehler R:**
General Melting Behavior at Very High Pressure: Implications for the Earth

11:30 **Albarède F & Blichert-Toft J:**
The Hf/Sm Fractionation in Basalts and the Evolution of the Terrestrial, Lunar, and Martian Mantles

11:45 **Allègre C:**
The Transitional Model Model for the Earth's Mantle and the Chemical Geodynamics Paradigm

(Symposium B Continued in Session Th:pm on Page 54)

Symposium E
Biological Geochemistry

Convenors: Matthew Collins, Derek Lovely & Rob Raiswell.
Location: Oxford University Museum.

09:00 **Bencheikh-Latmani R, Leckie J & Spormann A:**
Interactions of *Pseudomonas fluorescens* with Uranyl (UO_2^{2+}): Implications for Mobility of Uranyl in the Subsurface

09:15 **Lovley D, Methe B, Coppi M, Nevin K, Childers S, Lloyd J & Leang C:**
Genomic Approach to the Study of Microbial Reduction of Iron and Uranium in Subsurface Environments

09:30 **Banwart SA:**
Microbial Reduction of Iron(III) Minerals by Natural Organic Matter

09:45 **Brantley S, Liermann L, Guynn R & Bullen T:**
Fractionation of Fe Isotopes by Soil Microbes and Organic Acids

10:00 **Arato B, Cziner K, Posfai M, Marton E & Marton P:**
Magnetite and Greigite from Magnetotactic Bacteria and from Sedimentary Rocks: Size Distributions and Microstructures

10:15 **Hallberg R:**
Biomineralisation by Gallionella

10:30 **Hamade T, Phoenix V & Konhauser K:**
Photo-chemical and Biologically Mediated Precipitation of Iron and Silica

10:45 **Scott S & Fein J:**
Experimental Study of the Effect of Fe on Si Adsorption by *Bacillus subtilis*: Insights into Biological Precipitation of Silicate Minerals

11:00 **Phoenix V, Konhauser K & Howe A:**
Mechanisms of Rapid Silicate Biomineralisation in Hot Springs

11:15 **Van Cappellen P & Dixit S:**
Reactivity of Marine Biogenic Silica: Reconciling Water Column and Sediment Data

11:30 **Hyacinthe C, Anschutz P, Carbonel P, Jouanneau J & Jorissen F:**
Interactions of Iron, Manganese and Nitrogen in Muddy Sediments of the Bay of Biscay

11:45 **Motelica-Heino M & Davison W:**
In-situ Trace Metals Distribution in Lake Sediment Pore Waters: High Spatial Resolution Depth Profiling and 2D-Mapping

(Symposium E Continued in Session Th:pm on Page 54)

Symposium F
Ocean Circulation: Past and Present

Convenors: Gideon Henderson & Bill Jenkins.
Location: Physical Chemistry.

09:00 **Sigman D, Francois R, Altabet M & Lehman S:**
KEYNOTE The Nutrient Status of the Southern Ocean During the Last Ice Age and its Links to the Global Ocean

09:30 **McManus J, Francois R & Marchal O:**
Foraminifera Stable Isotopes, Bulk Sedimentary $^{231}Pa/^{230}Th$, and the Link between Thermohaline Circulation and Rapid Climate Oscillations

09:45 **Adkins J, Cheng H, Shen C, Edwards R & Druffel E:**
The Pre-bomb, Holocene and Deglacial Radiocarbon Content of the Deep Atlantic Ocean

10:00 **Labeyrie L, Cortijo E, Waelbroeck C, Paterne M, Kallel N & Duplessy JC:**
Ocean Sediment Isotopic Records of the Last Deglaciation Contain Key Information on the Interactions between Climate and Thermohaline Circulation at the Global Scale

10:15 **Schrag DP, Adkins JF & McIntyre K:**
Pore Fluid Constraints on Chemistry and Temperature of the Glacial Ocean

10:30 **Discussion:**

10:45 **Hemming SR, Goldstein SL, Bond A & Turrin BD:**
Radiogenic Ar Concentrations of De-carbonated Sediments Around South Africa

11:00 **Piotrowski AM, Goldstein SL & Hemming SR:**
Neodymium Isotopic Evidence for Late Glacial and Holocene Millennial-scale Variations in North Atlantic Deep Water Export to the South Atlantic

11:15 **Goldstein SL, Hemming SR, Piotrowski AM & Machlus M:**
North Pacific Deep Water Formation During the Last Glacial Maximum?

11:30 **Pichat S, Albarede F, Beaufort L, Francois R & Sims KW:**
A High Resolution $(^{231}Pa/^{230}Th)_{xs,0}$ Profile from the Western Pacific Warm Pool over the Last Five Isotopic Stages

11:45 **Wolff-Boenisch B, Hamelin B, Angeletti B & Bard E:**
Pb Isotope Data from Deep-Sea Sediments from the Southwestern Indian Ocean and the Southeastern Arabian Sea

(Symposium F Continued in Session Th:pm on Page 55)

Symposium I
Mineral Surfaces and Reactions

Convenors: Andrew Putnis & Vala Ragnarsdottir.
Location: Zoology A.

09:00 **Manceau A, Lanson B & Drits V:**
KEYNOTE Surface Structural Control of Trace Element Partitioning in Natural Mn Oxides

09:30 **Grolimund D, Warner JA, Carrier X & Brown, Jr. GE:**
Chemical Behavior of Strontium at the Solid-Liquid Interface of Amorphous Manganese Oxides: A Molecular-level Study Using EXAFS

09:45 **Brown, Jr. GE, Chambers SA, Amonette JE, Rustad JR, Kendelewicz T, Doyle CS, Grolimund D, Foster-Mills NS, Joyce SA & Thevuthasan S:**
Abiotic Interactions of Aqueous Chromium Ions with Iron Oxide Surfaces

10:00 **Tadanier CJ, Eick MJ & Hochella MF:**
Surface Complexation Modeling of P_i-Goethite Adsorption Behavior: Integrating Adsorption Edge and Surface Charging Data

10:15 **Sverjensky D & Criscenti L:**
Speciation of Alkaline Earth Adsorption on the Surfaces of Oxide and Hydroxide Minerals in Salt Solutions

10:30 **Machesky M, Wesolowski D, Palmer D & Ridley M:**
On the Temperature Dependence of Intrinsic Surface Protonation Equilibrium Constants: An Extension of the Revised MUSIC Model

10:45 **Fenter P, Cheng L, Machesky ML, Bedzyk MJ & Sturchio NC:**
Probing the Electrical Double-Layer Structure at the Rutile-Water Interface with X-Ray Standing Waves

11:00 **Traina S & Chen C:**
XAS Investigation of Lanthanide Ion Sorption on Iron Oxide and Cr-Substituted Iron Oxide Surfaces

11:15 **Shaw S, Pepper SE, Livens FR, Henderson CMB, Vaughan DJ & Clark SM:**
Hydrothermal Formation of Hydrated Ferric Oxides: An *in situ* Synchrotron Study

11:30 **Valsami-Jones E, Fields M & Ragnarsdottir KV:**
Apatite Reactivity in the Presence of Rare Earth Elements (REE) and Uranium

11:45 **Peaudecerf A, Charlet L, Chapron Y, Reiche I & Menu M:**
Influence of Cations on the Dissolution of Apatite – A Combined Experimental and Computational Approach

(Symposium I Continued in Session Th:pm on Page 55)

Symposium J
Mantle Dynamics and Melting

Convenors: Tim Elliott & Erik Hauri.
Location: Clarendon Martin Wood.

09:00 **Kelley SP, Brooker RA, Chamorro-Perez E, Wartho J & Wood B:**
An Experimental View of the Behaviour of Noble Gases During Mantle Melting

09:15 **Burnard P, Farley K, Graham D & Mukhopadhyay S:**
Fractionation of Noble Gases During Mantle Melting: Amsterdam-St. Paul's Plateau, South East Indian Ridge

09:30 **Barfod DN, Lee D, Ballentine CJ & Halliday AN:**
The Role of Deep Melting Under the Cameroon Line in the Fractionation of Helium and Incompatible Lithophile Elements

09:45 **Hilton DR, Thirlwall MF, Taylor RN & Murton BJ:**
Coupled He-Pb Isotope Relationships along the Reykjanes Ridge with Implications for Plume Structure and the Helium-Paradox

10:00 **Stuart F, Ellam R, Fitton G & Raistrick M:**
Constraints on Magma Sources in the North Atlantic Ocean from the Isotope Geochemistry of Basalts from Jan Mayen and Snaefellsness, Iceland

10:15 **Discussion:**

10:30 **Blundy J & Green T:**
A Partitioning Origin for Strontium Anomalies in Mantle-derived Melts

10:45 **Burton KW, Gannoun A, Schiano P, Birck J & Allègre CJ:**
The Partitioning of Rhenium and Osmium into Magmatic Olivine and the Consequences for the Chemistry of Oceanic Basalts

11:00 **David K, Schiano P & Allègre CJ:**
Assessment of Zr/Hf Fractionation in Oceanic Basalts During Petrogenetic Processes

11:15 **Dalton J & Blundy J:**
Carbonatites from Recycled Eclogites

11:30 **Heaman L, Creaser R & Cookenboo H:**
Extreme High-field-strength Element Enrichment in Eclogite Xenoliths from the Jericho Kimberlite, Canada: The Geochemical Complement of Subduction Zone Magmatism

11:45 **Ionov D, Mukasa S & Bodinier J:**
Sr and Nd Isotope Decoupling in the Mantle by Melt Percolation Metasomatism: Evidence from Peridotite Xenoliths from Spitsbergen

(Symposium J Continued in Session Th:pm on Page 56)

Symposium M
Chemistry and Microbiology of Pollution

Convenors: Adrian Bath & Barbara Sherwood-Lollar.
Location: Earth Sciences.

09:00 **Criddle C:**
KEYNOTE Serendipity and Bioaugmentation: The Strange True Story of *Pseudomonas stutzeri* KC

09:30 **Edwards E, Cox E, McMaster M, Dworatzek S & Major D:**
Bioaugmentation for Complete Dechlorination of Chlorinated Ethenes

09:45 **Hall J, Mailloux B, Onstott T, Fuller M, Strenger S, Rothmel R & Deflaun M:**
The Effect of Physical and Chemical Sediment Heterogeneity on Aerobic and Anaerobic Bacterial Transport

10:00 **Roberts Rogers J, Bennett P & Barker J:**
Ligand-Promoted Nutrient Release from Silicates

10:15 **McCormick M, Gerdenich M, Kao L & Adriaens P:**
Geochemistry of Hydrous Ferric Oxide Reduction by *Geobacter metallireducens*: Implications for Sustained Dechlorination of Tetrachloromethane

10:30 **Slater G, Sherwood Lollar B, Allen-King R & O'Hannesin S:**
Carbon Isotopic Fractionation by Zero-Valent Iron: Influence of Surface Pretreatment

10:45 **Discussion:**

11:00 **Diegor E, Abrajano T, Patel T, Stehmeier L, Gow J & Winsor L:**
Biodegradation of Aromatic Hydrocarbons: Microbial and Isotopic Studies

11:15 **Ward JAM, Ahad JME, Lacrampe-Couloume G, Slater GF, Edwards EA & Sherwood-Lollar B:**
Hydrogen Isotope Fractionation During Methanogenic Degradation of Toluene: Potential for Direct Verification of Bioremediation

11:30 **Bottrell S & Spence M:**
Assessing Anoxic Biodegradation via Sulphate Reduction Using Sulphate Stable Isotopes

11:45 **Lenczewski M, McKay L & Layton A:**
Trichloroethylene Biodegradation in Large Undistributed Columns of Fractured Weathered Shale in East Tennessee

(Symposium M Continued in Session Th:pm on Page 56)

Symposium N

Low Temperature and Metamorphic Geochemistry and Geochronology

Convenor: Nigel Harris.

Location: Zoology B+C.

09:00 **Möller A:**
In-situ Geochronology and Mineral Growth Episodes: A Tale of Proterozoic to Palaeozoic Shearzone Activity from the Strangways Metamorphic Complex, Central Australia

09:15 **Harlov D & Hans-Jürgen F:**
Experimental Nucleation of Co-Existing Monazite and Xenotime Grains in Chlorapatite

09:30 **Foster G, Vance D, Kinny P, Prince C & Harris N:**
The Significance of Monazite U-Th-Pb Age Data in Metamorphic Assemblages: A Combined Chemical and Isotopic Study

09:45 **Harris N, Prince C & Vance D:**
Fluid Control on Crustal Melting During Orogenesis

10:00 **Argles T:**
Sm-Nd Isotopic Mapping of the Western Himalayan Syntaxis: Tectono-stratigraphic Correlations and Insights

10:15 **Jenkin GR, Ellam R, Rogers G & Stuart F:**
What Really Controls Mica Rb-Sr Closure Temperature?

10:30 **Xiao Y, Hoefs J, van den Kerkhof A & Fiebig J:**
Different Fluid Histories During the Metamorphic Evolution of North and South Dabie Shan, China

10:45 **Dunai TJ:**
Helium Diffusion in Apatite Revisited: Is the High Temperature Diffusion Mechanism an Artefact or a Reality?

11:00 **Cosca M, Giorgis D, Janak M, Kramar N & Mulch A:**
The Influence of Metamorphic History on Intragrain Argon Isotope Variations in Metamorphic White Mica Mapped by *in situ* UV Laser Ablation $^{40}Ar/^{39}Ar$ Geochronology

11:15 **Giorgis D, Cosca M, Rumble D & Liou JG:**
Correlated Argon and Oxygen Isotopes in UHP Eclogites from Qinglongshan (Sulu Terrain, China): Evidence for Inherited Argon

11:30 **Chen S, Zhou X, Zhang G, Li J & Chen L:**
Origin of the Coronas in the Mafic Granulite Xenoliths from Hannuoba, Northern Sino-Korean Craton

(Symposium N Continued in Session Th:pm on Page 57)

Symposium O

Open Symposium

Convenor: Nigel Harris.

Location: Inorganic Chemistry.

09:00 **O'Nions RK, Zhu XK, Guo Y & Matthews A:**
Fractionation of Heavier Stable Isotopes in Planetary Processes

09:15 **Bailey T, Thirlwall M & McArthur J:**
The Potential of Laser Ablation Multiple-Collector ICP-MS in Strontium Isotope Stratigraphy

09:30 **Hellstrom J:**
Accurate Measurement of Uranium and Thorium Isotopic Ratios in Low-uranium Natural Carbonates Using Multi-collector ICP-MS

09:45 **Halliday A, Rehkämper M, Schönbächler M, Oberli F, Freedman P, Frank M, Müller W, Teutsch N, Baur H & Wiechert U:**
MC-ICPMS – The Good, the Small and the Massive

10:00 **Horstwood M, Parrish R, Nowell G & Noble S:**
Further Advances in U-Th-Pb LA-PIMMS

10:15 **Košler J, Cox R, Sylvester P, Wilton D, Stein H & Schersten A:**
Laser Ablation ICP-MS Analysis of Molybdenites – Implications for Re-Os Geochronology

10:30 **Schwieters J, Hamester M, Jung G, Pesch R, Rottmann L, Tuttas D & Wills J:**
Neptune: A new High Precision Multicollector ICP Mass Spectrometer

10:45 **Yin Q & Lee C:**
Plasma Centrifuge and Isotopic Fractionation in MC-ICP-MS

11:00 **Pearson NJ, Alard O, Griffin WL, Graham S & Jackson SE:**
LAM-MC-ICPMS Analysis of Mantle-derived Sulfides: The Key to Re-Os Systematics of Mantle Peridotites

11:15 **Thirlwall M:**
Precise Pb Isotope Analysis of Standards and Samples Using an Isoprobe Multicollector ICP-MS: Comparisons with Doublespike Thermal Ionization Data

11:30 **Palacz Z, Turner P & Meffan-Main S:**
Ultra High Nd Isotope Ratio Precisions – The Limit of Exponential Mass Fractionation Correction

11:45 **Vance D & Thirwall M:**
Precise and Accurate Neodymium Isotopic Analysis of Sub-5ng Samples by MC-ICPMS

(Symposium O Continued in Session Th:pm on Page 57)

Symposium B
Chemistry and Dynamics of the Earth

Convenors: George Helffrich & Bernie Wood.
Location: Clarendon Lindemann.

14:00 **Rubie DC, Fortenfant S, Holzapfel C, Frost DJ & Gessmann CK:**
Kinetics of Metal-Silicate Reactions During Formation of the Earth's Core

14:15 **Harte B, Sanehira T, Irifune T, Kawasaki T & Sato T:**
Experimental Studies of Sulphide Melt Textures in the Lower and Upper Mantle

14:30 **Hillgren VJ & Boehler R:**
Evaluating Si as a Candidate Light Element

14:45 **Chabot NL & Agee CB:**
The Effect of Core-Mantle Differentiation on V, Cr, and Mn: Preliminary Experimental Results

15:00 **Wade J & Wood B:**
Earth's Missing Niobium: in the Core?

15:15 **Jephcoat A:**
Chemistry and Physics of the Earth's Core

15:30 **Price GD, Vocadlo L, Alfe D & Gillan MJ:**
The Application of Ab Initio Quantum Mechanical Methods to the Study of the Earth's Core

15:45 **Sherman DM:**
Constraints on Core-Mantle Equilibrium: Metal-Oxide Partitioning of Ni, Co and Zn at High Pressure

(Symposium B Continued in Session Th:PO on Page 58)

Symposium E
Biological Geochemistry

Convenors: Matthew Collins, Derek Lovely & Rob Raiswell.
Location: Oxford University Museum.

14:00 **Graham D:**
Application of Resource-Ratio Theory to Contaminant Transformation Phenomena in Natural Systems

14:15 **Richnow HH, Zengler K, Gehre M, Michaelis W & Widdel F:**
Methane Formation During the Degradation of N-alkanes and Total Crude Oils

14:30 **Larter S, Head I & Wilhelms A:**
Implications of Slow Biodegradation Rates in Oilfields for Crustal Biospheres

14:45 **Petsch S, Edwards K & Eglinton T:**
Microbes That Utilize Kerogen: Degradation of Ancient, Refractory Organic Matter During Black Shale Weathering

15:00 **Tadanier CJ, Airey C, Berry DF, Potts M & Hochella MF:**
An Integrated Biogeochemical Approach for Studying Bio-availability of Microbial Nutrients Sorbed on Mineral Surfaces

15:15 **Lower S, Tadanier C & Hochella M:**
Probing the Dynamic Nanoscale World at the Interface between Micro-organism and Minerals

15:30 **Edwards K & Rutenburg A:**
Microbial Response to Mineral Surface Microtopography

15:45 **Skidmore M, Foght J, Sharp M, Parkes J & Tranter M:**
Subglacial Microbiology and Chemical Weathering

(Symposium E Continued in Session Th:PO on Page 59)

Symposium F
Ocean Circulation: Past and Present

Convenors: Gideon Henderson & Bill Jenkins.
Location: Physical Chemistry.

14:00 **Schrag DP & Berner RA:**
On the Initiation of a Snowball Earth

14:15 **Zhang R, Follows M & Marshall J:**
Models of Haline-Thermal Mode Switching in Palaeo Oceans

14:30 **Picard S, Lécuyer C, Barrat J, Garcia J, Dromart G & Sheppard S:**
Rare Earth Element Chemistry of Jurassic Seawater Inferred from Fish and Reptile Apatite (Paris Basin, France and England)

14:45 **Kenig F, Simons DH & DiFrancesco G:**
Biomarker Constraints on Water Column Structure and Oceanographic Circulation in an Epeiric Sea (Callovian, Jurassic, North-Western Europe)

15:00 **Simons DH & Kenig F:**
Molecular Fossil Constraints on the Water Column Structure of the Cenomanian-Turonian Western Interior Seaway, North America

15:15 **Gleason J, Rea D, Joseph L, Owen R, Blum J, Klaue A & Klaue B:**
Nd-Sr-Pb Isotopic Variations in Deep-Sea Clays, Kerguelen Drift: A 7 Ma Record of Fluctuations in the Antarctic Ice-Sheet?

15:30 **Frank M, Whiteley N, Kasten S, Hein JR & O'Nions RK:**
Evidence for Stronger Thermohaline Circulation Prior to Northern Hemisphere Glaciation from Nd and Pb Isotopes in Ferromanganese Crusts

(Symposium F Continued in Session Th:PO on Page 60)

Symposium I
Mineral Surfaces and Reactions

Convenors: Andrew Putnis & Vala Ragnarsdottir.
Location: Zoology A.

14:00 **Schoonen M, Strongin D, Elsetinow A & Borda M:**
The Influence of Light and Heat on Pyrite Oxidation between pH 2 and 6

14:15 **Bostick B, Fendorf S & Helz G:**
Molybdenum Adsorption Mechanisms on Pyrite

14:30 **Farquhar ML, Wogelius RA & Vaughan DJ:**
Pyrite Surfaces – What a Difference a Day Makes

14:45 **Cottnam C, Butler I & Rickard D:**
Sorption Mechanisms of Co and Ni with Precipitated FeS

15:00 **Wolthers M, Butler I, Rickard D & van der Weijden C:**
Arsenic Incorporation into Pyrite at Low Temperature, Experimental Results

15:15 **Butler I, Grimes S & Rickard D:**
Pyrite Formation in an Anoxic Chemostatic Reaction System

15:30 **Todd E, Sherman DM & Purton JA:**
Nature of Sulphide Mineral Surfaces Under Atmospheric Conditions: Results from NEXAFS

15:45 **Oelkers EH:**
The Temporal Variation of Quartz Dissolution Rates: Have Quartz Dissolution Rates Changed Over Historic Time?

(Symposium I Continued in Session Th:PO on Page 61)

Symposium J
Mantle Dynamics and Melting

Convenors: Tim Elliott & Erik Hauri.
Location: Clarendon Martin Wood.

14:00 **Kirstein L, Dunworth L, Nikigosian I & Touret J:**
Melt Variations in the Oslo Rift as Recorded by Melt Inclusions Hosted by Pyroxene Phenocrysts

14:15 **Rogers N, Macdonald R, Hawkesworth C & Thomas L:**
Melting beneath a Continental Rift: Radiogenic Isotope and U-series Analyses from the Kenya Rift

14:30 **Wilson M:**
Intra-plate Magmatism Related to Short Wavelength Convective Instabilities in the Upper Mantle – A Case Study from the Massif Central, France

14:45 **Williams HM, Turner SP, Kelley SP & Harris NBW:**
Low-degree Mantle Melting beneath Tibet: Signals of Heterogeneous Lithosphere Erosion

15:00 **Zou H, Reid M, Liu Y & Yao Y:**
U-Th Disequilibrium Studies of Historic Potassic Alkali Basalts in NE China

15:15 **Tilton GR & Bell K:**
Probing the Mantle: The Isotope Story from Carbonatites

15:30 **O'Reilly SY & Zhang M:**
Basalts as Probes of Global Convection and Regional Geochemical Domains in the Mantle beneath Australia

15:45 **Bogatikov OA, Kononova VA, Pervov VA & Zhuravlev DZ:**
Nd-Sr Isotopic and Trace Element Systematic of the Devonian Kimberlites from the Northern Margin of the Russian Platform: Implications for the Mantle Source Heterogeneity

(Symposium J Continued in Session Fr:am on Page 68)

Symposium M
Chemistry and Microbiology of Pollution

Convenors: Adrian Bath & Barbara Sherwood-Lollar.
Location: Earth Sciences.

14:00 **Jones A, Fenwick C, Glover AL, Henkler RD & Mason JR:**
Assessment of Constraints to Bioremediation in Contaminated Sites

14:15 **Milner MG, Jones DM, Swannell RP, Daniel F, Mitchell D & Head IM:**
Effect of Nutrient Concentration on the Selection of Bacterial Communities and Oil Composition During Bio-remediation of Contaminated Beach Sediments

14:30 **Kruge M & Benoit G:**
Biogeochemistry and Contaminant Geochemistry of Marine and Estuarine Sediments, New Haven, Connecticut (USA)

14:45 **Schmidt N & Stottmeister U:**
System-integrated Environmental Biotechnology: Remediation of Polluted Groundwater and Surface Water

15:00 **Seed K, Cave M, Carter J & Parker A:**
Determination of Soil Selenium Speciation Using a New Extraction Methodology and Chemometric Data Analysis

15:15 **Pourcelot L, Bouisset P, Calmet D & Louvat D:**
Spatio Temporal Variability of Cesium Fallout in one High Altitude Catchment Basin

15:30 **Duffa C, Renaud P & Louvat D:**
Tracing of Plutonium Contamination Over Inundated Areas of Camargue (France)

15:45 **Peinerud EK:**
Geochemistry of S and Ni in the Subarctic Lake Imandra, Kola Peninsula, Russia

Symposium N

Low Temperature and Metamorphic Geochemistry and Geochronology

Convenor: Nigel Harris.
Location: Zoology B+C.

14:00 **Andersson PS, Ingri J, Öhlander B, Land M, Widerlund A, Dahlqvist R & Gustafsson Ö:**
Weathering, Transport and Sedimentation of Rare Earth Elements and Nd-isotopes in a Boreal River Basin – Brackish Bay Area

14:15 **Ingri J, Andersson PS, Widerlund A, Öhlander B, Gustafsson Ö & Land M:**
The Ce-anomaly in River Suspended Matter an Indicator of Hydrogeochemical Processes in a Boreal Catchment

14:30 **Takahashi Y, Shimizu H, Kagi H, Yoshida H, Usui A & Nomura M:**
A New Method for the Determination of Ce(III) / Ce(IV) Ratios in Rocks; Application to Weathering, Sedimentary, and Diagenetic Processes

14:45 **Van der Weijden CH:**
Pitfalls of Normalization of Trace Elements in Sediments

15:00 **Thoenen T & Hummel W:**
Application of the Brønstedt-Guggenheim-Scatchard Specific Ion Interaction Theory to the Concentration Dependence of Complexation Constants in NaCl Solutions up to the Saturation of Halite

15:15 **Webb E & Longstaffe F:**
Oxygen-Isotope Behaviour of Silica Phytoliths in Prairie Grasses Across the Great Plains of North America

15:30 **Kovalevskii A:**
The Biogenic Mineralization in Plants

15:45 **Melezhik V & Fallick A:**
Isotopic Evidence for Biological Origin of Shungite, Generation of Petroleum and ^{13}C Depleted Nature of Initial Biomass at 2.0 Ga ago

(Symposium N Continued in Session Th:PO on Page 62)

Symposium O

Open Symposium

Convenor: Nigel Harris.
Location: Inorganic Chemistry.

14:00 **Cox R, Košler J, Sylvester P & Hodych J:**
Apatite Fission-Track (FT) Dating by LAM-ICP-MS Analysis

14:15 **Meffan-Main S, Palacz Z & Turner P:**
IsoProbe^2 – The Second Generation Single Focussing MC-ICPMS

14:30 **Matthews A, Zhu X & O'Nions K:**
Experimental Study of Iron Isotope Fractionation

14:45 **Hamester M, Wills J, Pesch R & Schwieters J:**
Full Mass Range, Multi-elemental Analysis with a Rapid Scanning Single Collector Sector Field ICP-MS for Laser Ablation Analysis

15:00 **Jackson S, Griffin W, Sharma A & Belousova E:**
Progress in the Application of Laser Ablation Microprobe (LAM)-ICP-MS to in Situ U-Pb Zircon Geochronology

15:15 **Barfod GH, Albarede F & Frei R:**
Dating of Phosphatic Material by the Lu-Hf Isotopic System

15:30 **Münker C, Weyer S, Scherer E & Mezger K:**
High Precision Nb/Ta, Zr/Hf and Lu/Hf Measurements by MC-ICPMS Using a Mixed Zr-Hf-Ta-Lu Tracer

15:45 **Klaue B & Blum JD:**
Mercury Isotopic Analyses by Single- and Multi-Collector Magnetic Sector Inductively Coupled Plasma Mass Spectrometry

(Symposium O Continued in Session Th:PO on Page 63)

Symposium B

Chemistry and Dynamics of the Earth

Convenors: George Helffrich & Bernie Wood.

Location: Poster Hall.

1 **Alfè D, Gillan MJ & Price GD:**
Ab Initio Calculations and the Composition of the Earth's Core

2 **Amelin Y:**
Combined U-Pb and Sm-Nd Systematics of Early Archean Titanite

3 **Bass J & Sinogeikin S:**
Elasticity of Mantle Minerals at High Pressures and Temperatures: Implications for Mantle Composition and Heterogeity

4 **Bovolo CI, Sherman DM & Hellfrich GR:**
Composition of the Lower Mantle: Predicted Properties from Atomistic Simulations

5 **Calderwood A:**
The Argon Constraint on Mantle Structure Re-visited: Whole Mantle Convection with a K and Ar Rich Core

6 **Calderwood A:**
The Distribution of Niobium, Uranium, Cerium, and Lead in the Earth and its Constraint on the Mass of the Depleted Mantle and Solar Nebula Temperature

7 **Calderwood A:**
The Distribution of Potassium, Rubidium, and Cesium in the Earth and the Hypothesis of K, Rb, and Cs in the Core

8 **Calderwood A:**
The Helium-Heat Flow Paradox Re-visited: Whole Mantle Convection with a He-rich Core

9 **Fortenfant S, Dalpe C, Gessmann C & Rubie D:**
Partitioning of Re and Os between Liquid Metal and Magnesiowüstite at High Pressure

10 **Gautron L, Malavergne V, Martinez I & Guyot F:**
High-Pressure and High-Temperature Reactions between Mantle Minerals and Metals in the Fe-Si-O-S System

11 **Kamo SL, Czamanske GK, Amelin Y, Fedorenko V & Trofimov V:**
U-Pb Zircon and Baddeleyite and U-Th-Pb Perovskite Ages for Siberian Flood Volcanism, Maymecha-Kotuy Area, Siberia

12 **Kleppe AK, Jephcoat AP, Olijnyk H, Slesinger AE, Wood BJ & Kohn SC:**
Raman Observations of the OH Stretching Region in Hydrous β-Mg_2SiO_4 (Wadsleyite) to 50 GPa

13 **Lee C:**
V and Sc Systematics in Cratonic Mantle Peridotites: A Cumulate Origin for the Excess Si in the Mantle beneath Archean Cratons

14 **Lewin É & Allègre CJ:**
Geochemical Evolution of an Heterogeneous, Open and Convective Reservoir: A Theoretical Approach

15 **Osmaston MF:**
An Upper Mantle Source for Plumes and Dupal; Result of Processes and History That Have Shaped the Earth's Interior and Chemistry from Core to Crust

16 **Xie Q, Kerrich R & Fryer B:**
U-Th-Nb-La Systematics of Archaean Komatiites from the 2.7 Ga Abitibi Sub-province: Implications for the Formation of Continental Crust and Lithosphere Recycling

(Symposium B Continued in Session Fr:am on Page 66)

Symposium E
Biological Geochemistry

Convenors: Matthew Collins, Derek Lovely & Rob Raiswell.
Location: Poster Hall.

1 **Barth J, Slater G, Schueth C, Bill M, Downey A, Sherwood Lollar B & Kalin RM:**
Carbon Stable Isotope Effects as a Tool to Monitor Dechlorination of Trichloroethylene (TCE)

2 **Bau M, Dulski P & Brantley S:**
Estuarine Origin of the Positive La Anomaly and Super-chondritic Y/Ho Ratio of Seawater: Evidence from Mixing Experiments

3 **Behrends T & Van Cappellen P:**
Surface Catalysed Reduction of uranium(VI) by Iron (II) in the Presence of Carbonate

4 **Böttcher ME, Thamdrup B & Vennemann TW:**
Stable Isotope Fractionation During Anaerobic Bacterial Disproportionation of Elemental Sulfur: The Influence of Fe(II), Fe(III), and Mn(IV) Compounds

5 **Böttcher ME, Boetius A & Rickert D:**
Sulfur Isotope Biogeochemistry Related to Intense Microbial Sulfate Reduction and Anaerobic Methane Oxidation in Marine Deep-Sea Sediments (Hydrate Ridge)

6 **Cardinal D, André L, Dehairs F, Cattaldo T, Fagel N & Trull T:**
Geochemistry of Surface Sediments, Filtered and Sediment Trap Particles from the Sub Antarctic and Polar Front Zones of the Southern Ocean, South of Tasmania

7 **Chang VT, Galy A & O'Nions RK:**
A Preliminary Study on Mg Isotopic Compositions of Foraminifera

8 **Drever JI & Colberg PJ:**
Controls on the Mobility of Arsenic in Sediments of Milltown Reservoir, Montana, USA

9 **Eilrich B, Steinmann P, Burns SJ, Leuenberger M & Alm J:**
Origin and Circulation of CH_4 and CO_2 in Peatlands: Implications from C-isotope Composition and Geochemical Modelling

10 **Finke N, Knoblauch C, Ferdelman TG & Jørgensen BB:**
Volatile Fatty Acids in Arctic Sediments

11 **Habermann D & Banerjee A:**
Investigation of Manganese in Salt- and Fresh-water Pearls

12 **Hareli Y, Erel Y & Sukenik A:**
The Interrelation between Fe Speciation, Temporal and Spatial Distribution and Phytoplankton Population in Lake Kinneret

13 **Hensen C, Schulz HD, Pfeifer K, Zabel M & Kasten S:**
Interpretation of Pore Water Profiles Affected by Intense Lateral Sediment Advection: Examples from the Argentinean and Uruguayan Continental Slope

14 **Hirner AV & Hahn-Weinheimer P:**
Biomethylation Processes Contributing to Geochemical Cycling of Metal(loid)s

15 **Holmden C & Hudson JD:**
Strontium Isotope Investigation of Paleosalinity in the Great Estuarine Group, Jurassic, Scotland

16 **Hozhina E & Mazeina L:**
Experimental Model of Heavy Metals Distribution in the System "Collection Ponds of Mining Industry - Aquatic Macrophytes - Environment" on the Instance of Salair ore Refining Plant

17 **Huang W, Lerner D, Smith C & Thornton S:**
A Study of Transverse Dispersion in a UK Aquifer

18 **Johnson A, Mehra A, Chenery S & Jenkinson P:**
Monitoring of Environmental Heavy Metal Loads Using the Shell of *Dreissina polymorpha*: A Laser-ablation Inductively-coupled-plasma Mass-spectrometry Study

19 **Kiyosu Y & Sakuta S:**
Stable Isotope Composition of Dissolved Methane from Some Peatlands in Central Japan

20 **Klaue A, Kennedy B, Blum J, Folt C & Lohmann K:**
Sr Isotope Markers in Otolith Growth Increments of Atlantic Salmon

21 **Koretsky C, Meile C, Curry B, Haas J, Hunter K & Van Cappellen P:**
The Effect of Colonization by *Spartina Alterniflora* on Pore Water Redox Geochemistry at a Saltmarsh on Sapelo Island, GA

22 **Lazaret C, Vander Putten E, André L & Dehairs F:**
On the Potential of Bivalve Shells to Record Environmental Conditions: A LA-ICP-MS Study of Trace Element Distributions along a Growth/time Axis

23 **Mortimer RJG, Hayes P, Krom M, Davies I, Davison W, Zhang H, Phillips C & Prosser J:**
A New Conceptual Model for Microbial Processes in Sediments

24 **Nielsen JK:**
Scanning Electron Microscopy Point Counting (SEMPC) and Digital Image Analysis Microscopy (DIAM) for Determination and Quantification of Iron and Other Phases in Ancient Marine Sediments

25 **Ostertag-Henning C & Ostertag-Henning C:**
Nitrogen Isotope Systematics of Modern and Ancient Immature Sediments: Isotopic Composition and Percentage of Different Nitrogen Forms

26 **Peiffer S, Peine A & Kuesel K:**
Geochemical Constraints on the Anaerobic Electron Flow in the Sediment of an Acidic Lake

27 **Prasad GK & Rajamani V:**
Role of 'bio' in Weathering, Nutrient Release and Mobilization of Al and Fe in the Cauvery Floodplain Sediments, Southern India

28 **Strekopytov S, Dubinin A & Uspenskaya T:**
Geochemical and Mineralogical Studies of Fe-Mn Nodules and Crusts from the White Sea: Potential Role of Benthic Fauna in their Formation

29 **Thomson J, Nixon S, Croudace I, Pedersen T, Brown L, Cook G & MacKenzie A:**
Redox-sensitive Element Uptake at the North-east Atlantic Benthic Boundary Layer Experiment Sites

30 **Turpault M, Augusto L, Ranger J, Bonnaud P, Uterano C & Nys C:**
Measure Soil Minerals Weathering Rate Using "Test Minerals" Method. Results Expected and Limits of the Method

31 **Uterano C, Turpault M & Bonnaud P:**
Plants Impact on Soil: Rhizospheric and Seasonal Changes

32 **von Blanckenburg F:**
Iron Isotope Fractionation in Soils

33 **van Dongen BE, Pancost RD, Schouten S & Sinninghe Damsté JS:**
Carbon Isotopic Variability between Carbohydrates and Lipids within a Single Organism: An Explanation of the Enriched $\delta^{13}C_{TOC}$ Values in the Kimmeridge Clay Formation

34 **Vetõ I & Hetényi M:**
Evolution of Planktonic Production During the Toarcian Anoxic Event in Umbria (Italy)

35 **Wu Y, Banwart S, Pickup R, Thornton S & Lerner D:**
Anaerobic Biodegradability of Phenolic Compounds in Microcosms Derived from a Highly Contaminated Aquifer

(Symposium E Continued in Session Fr:am on Page 66)

Symposium F

Ocean Circulation: Past and Present

Convenors: Gideon Henderson & Bill Jenkins.
Location: Poster Hall.

1 **Amakawa H, Sotto Alibo D, Fukugawa K & Nozaki Y:**
REE Abundances and Nd Isotopic Ratios of Seawaters Around the Japanese Islands

2 **Bayon G, German CR, Nesbitt RW & Pierre C:**
Nd and Sr Isotopes in South East Atlantic Cores – Looking for Fluctuations in Sediment Provenance and Transport Processes between Interglacial and Glacial Periods

3 **Janousek V, Hladil J, Fryda J & Slavik L:**
Strontium Chemostratigraphy as an Indicator of Age and Duration of Reef Sedimentation: A Case Study from Koneprusy Reef of Pragian Age (Devonian, Central Bohemia)

4 **Paul HA, Bernasconi SM & McKenzie JA:**
Oxygen Isotopic Composition of Mediterranean Deepwater Since the Last Glacial Maximum: Constraints from Pore Water Analyses

5 **Raucsik B, Tolnai B, Horváth T, Szilágyi V & Hetényi M:**
Geochemistry of Lower Jurassic Organic-rich Sediments from the Mecsek Mountains, Southern Hungary

(Symposium F Continued in Session Fr:am on Page 67)

Symposium I

Mineral Surfaces and Reactions

Convenors: Andrew Putnis & Vala Ragnarsdottir.
Location: Poster Hall.

1 **Astilleros JM, Pina CM, Fernández-Díaz L & Putnis A:**
The Crystallisation of (Ca,Sr)CO_3 on Calcite {$10\bar{1}4$}surfaces: An AFM Study

2 **Azaroual M, Lassin A, Piantone P & Gaskova O:**
Thermodynamic Modelling of Arsenic Behaviour in Subsurface Aqueous Systems

3 **Banerjee D & Nesbitt HW:**
XPS Study of Reductive Dissolution of Synthetic Birnessite by Humate

4 **Berrodier I, Farges F, Benedetti M & Cortes R:**
Adsorption of Gold on Goethite Compared to the Starting Gold(III)-Chloride Solutions by XAFS Spectroscopy

5 **Bodénan F, Gaucher E, Baranger P, Piantone P & Braibant G:**
Hydrogeochemical Study of an Arsenic-bearing Gold-mine Site

6 **Butler I, Rickard D & Grimes S:**
Framboidal Pyrite: Self Organisation in the Fe-S System

7 **Butler I, Böttcher M & Rickard D:**
Sulphur Isotope Discrimination During Experimental Formation of Pyrite

8 **Chentouf A & Farran A:**
A Comparison of the Interaction of Azinphosmethyl with Two Different Smectites

9 **Domènech C, de Pablo J & Ayora C:**
Oxidative Dissolution Rate of Aznalcóllar Sulphide Sludge (SW Spain)

10 **Doyle CS, Kendelewicz T, Brown, Jr. GE, Chambers SA & Zachara JM:**
The Effect of Calcium Carbonate Coatings on Cr(VI) Reduction at the (111) Surface of Magnetite

11 **EL Aamrani F, Casas I, De Pablo J, Duro L, Grivé M & Bruno J:**
Experimental and Modeling Study of the Interaction between Uranium(vi) and Magnetite

12 **El Hatimi A, Martinez M, Duro L & de Pablo J:**
Sorption of Selenium Onto Natural Iron Oxides

13 **Emetz A:**
Sb-sulfosalt Formation in the Muzievo Deposit: Galena in Oxidizing Hydrothermal Solution

14 **Gago-Duport L, Fernandez-Bastero S, Pimentel F, Villar P, Santos A, Serra C & Vilas F:**
Glauconite Nucleation in Silica Tubular Microstructures from Low-temperature Solution Experiments

15 **Gannoun A, Burton KW, Birck J, Allègre CJ, Lee D, Halliday AN & Hein JR:**
A Cenozoic Record of the Osmium Isotope Composition of Sea Water Deduced from an Individual Hydrogenetic Fe-Mn Crust from the Central Pacific Ocean

16 **Garrido V, Martinez M, Rovira M, de Pablo J & Casas I:**
Interaction of Sr(II) and Mo(VI) with Synthetic Magnetite

17 **Golubev S:**
Solubility of Struvite in Seawater

18 **Harris SJ & Chester R:**
Early Diagenesis of Mn in Continental Slope Sediments: Evidence for a Redox-mediated Adsorbed Mn^{2+} Trap

19 **Higgins S, Jordan G, Coles B, Compton R, Eggleston C, Knauss K & Boro C:**
Studies of the Dissolution of Magnesite (104) in Acidic Aqueous Solutions: A new Approach Using Hydrothermal Scanning Probe Microscopy Under Controlled Hydrodynamic Conditions

20 **Hoferkamp LA & Weber EJ:**
Characterization of the Abiotic Reductants for Nitroaromatic Compounds as a Function of Redox Zonation in Anoxic Sediments

21 **Kim C, Brown, Jr. G & Rytuba J:**
Mercury(II) Sorption to Fe- and Al-(Hydr)oxides: pH and Ligand-Variable Systems

22 **Lassin A, Duplay J & Tardy Y:**
Evolution of Ca-K Exchange in Clays with Temperature: The Role of Hydration Processes

23 **Lassin A & Azaroual M:**
Evolution of Different Redox Couples During the Weathering of Mine Waste

24 **Lemelle L, Benzerara K, Lesourd M, Barakat M, Heulin T, Guyot F & Gillet P:**
Interactions of Bacteria with Silicate Surfaces Control the Evolution of Numerous Natural Processes: Formation of Sediments, Maturation of Soils, Fossilization, Formation of Ecosystems in Extreme-conditions

25 **Peacock CL, Sherman DM, Todd E & Heasman DM:**
Mechanism of Cu Sorption Onto Iron Oxides: Results from Sorption Isotherms and Spectroscopy

26 **Phillips BL & Casey WH:**
Molecular Models for Mineral Surfaces: Oxygen Exchange between Water and Aluminum Polyoxocations

27 **Prenat M & Oelkers EH:**
An Experimental Study of the Surface Areas of the Fontainebleau Sandstone: Are Geometric, Reactive, and Adsorptive Surface Areas Equivalent?

28 **Ridley M, Machesky M, Wesolowski D & Palmer D:**
Surface Complexation Modelling of the Adsorption of Ca(II) and Nd(III) at the Rutile-Water Interface to 250 C

29 **Rivas Perez J, Banwart S & Puigdomenech I:**
Surface Reaction Kinetics of O_2(aq) Reduction by Ferrous Silicate Minerals

30 **Rosso K, Zachara J & Smith S:**
Reductive Dissolution of Hematite by the Microbe *Shewanella putrefaciens*: Surface Transformations and Dissolution Pathways

31 **Savenko A:**
Phosphate Sorption Onto $CaCO_3$ from Seawater

32 **Sheals J, Persson P & Hedman B:**
Surface Complexes: Copper (II) and Glyphosate on Boehmite and Goethite Surfaces

33 **Tits J, Wieland E, Bradbury MH & Dobler J:**
The Interaction of ^{152}Eu and ^{228}Th with Calcite Under Alkaline Conditions

34 **Tossell J & Sahai N:**
Calculating the Acidity of Silanol Groups on Silicate Oligomers and Silicate Surfaces

35 **Tsuno H, Kagi H & Akagi T:**
Effects of Trace Lanthanum Ion on the Stability of Vaterite and Transformation from Vaterite to Calcite in an Aquatic System

36 **Utzmann A, Van Cappellen P, Schmincke H & Garbe-Schönberg D:**
Experimental Determination of Low-temperature Dissolution Kinetics of Silicate Glasses

37 **Van der Houwen J & Valsami-Jones E:**
The Influence of Organic Acids on the Dissolution of Synthetic Hydroxyl-apatite

38 **Warner J, Catalano J, Grolimund D, Traina S & Brown, Jr. G:**
Extreme Geochemistry: Strontium Interactions in Hyper-alkaline Aluminum and Feldspar Systems

39 **Yoshida T & Nakashima S:**
Dissolution of Goethite by Catechol:adsorption and Surface Complexes

(Symposium I Continued in Session Fr:am on Page 67)

Symposium N

Low Temperature and Metamorphic Geochemistry and Geochronology

Convenor: Nigel Harris.

Location: Poster Hall.

1 **Alexander JL, Bailey EH & Pickering KT:**
Using Rare Earth Elements as Provenance Indicators in Mudrocks from a Range of Tectonic Settings

2 **Ballentine CJ, Schoell M, Coleman D & Cain BA:**
Identifying the Mechanism and Character of Magmatic CO_2 Emplacement into Sedimentary Structures I: $CO_2/^3He/\delta^{13}C(CO_2)$ Variation in CO_2 Rich Permian Basin Natural Gases

3 **Bau M & Dulski P:**
Phosphate-Control of the Yttrium and Rare Earth Element Distribution in Precambrian Banded Iron-Formations: Evidence from a LAM-ICP-MS Study

4 **Craig C, Thirlwall M & Rhodes E:**
U-Pb Geochronology of Quaternary Biogenic Carbonates from the Mediterranean Region

5 **Di Giulio A, Dunkl I, Kuhlemann J & Frisch W:**
Combination of Zircon Morphology and Fission Track Dating in Provenance Studies – Origin of the Macigno Formation (Apennines, Italy)

6 **Embey-Isztin A, Downes H, Dobosi G & Kempton P:**
Geochemistry of Lower Crustal Granulite Xenoliths from Mindszentkalla and Sabarhegy, Pannonian Basin, Hungary

7 **Gannoun A, Tessalina S, Orgeval J, Tatarko N, Birck J & Allègre C:**
Late Devonian Re-Os age for Sulphides from Dergamish Massif Sulphide, South Ural, Russia

8 **Kendrick M, Burgess R, Pattrick RAD & Turner G:**
Direct Age Determinations of Mineralised Quartz Veins Using the ^{40}Ar-^{39}Ar Method

9 **Kuznetsov A, Melezhik V, Gorokhov I, Fallick A & Melnikov N:**
$^{87}Sr/^{86}Sr$ Ratios and $\delta^{13}C$ in Early Palaeoproterozoic Marginal Marine, Sabkha and Lacustrine Evaporitic Carbonates, the Canadian and Fennoscandian Shields

10 **Laajoki K, Corfu F & Tom A:**
U-Pb Zircon Dating of the Mesoproterozoic Brunkeberg Formation and its Bearing on the Stratigraphy and Tectonic Setting of Telemark Supracrustals, South Norway

11 **Peruzzo L & Busà T:**
Geochemical Correlation and Distinction between Similar Meta-sedimentary Units from the Eastern Alps

12 **Poller U, Todt W, Kohut M & Janak M:**
Geochemical and Isotopic Characteristics of the Granitoids from the Velka Fatra (W-Carpathians) in Combination with U-Pb Ion-microprobe and TIMS Single Zircon Dating

13 **Sano Y & Terada K:**
In Situ ion Microprobe U-Th-Pb Dating and REE Abundance of Biogenic Apatite

14 **Skublov S & Drugova G:**
REE Distribution in Metamorphic Garnets (the Lapland Granulite Belt)

15 **Steinmann M & Déjardin P:**
Fluid Flow Through the Tahiti Barrier Reef Traced by Sr Isotopes and Pore Water Chemistry

16 **Svojtka M, Svobodová J & Kosler J:**
Diffusion Modelling of Garnets from Granulites in Southern Bohemia

17 **Townley H, Jenkin G & Parrish R:**
The Effect of Chemical Exchange on Mica Rb-Sr Ages in Slowly Cooled Rocks: Theory and Results

(Symposium N Continued in Session Fr:am on Page 68)

Symposium O
Open Symposium

Convenor: Nigel Harris.
Location: Poster Hall.

1 **Alard O, Griffin WL, Lorand J, Pearson NJ & O'Reilly SY:**
In-situ Analysis of Highly Siderophile Elements and Re-Os Isotopes by LAM -ICPMS and LAM-MC-ICPMS Reveals the Residual and Mobile Nature of Mantle Sulfides

2 **Baker J, Krogstad E, David P, Waight T & Willigers B:**
Nd Isotope and Sm/Nd Ratio Measurements by Multi-collector Inductively Coupled Plasma Mass Spectrometry

3 **Barfod DN, Stuart FM, Persano C, Botor D & Gallagher K:**
Actinide-helium Thermochronology; Progress and Promise

4 **Bowen I & Miller P:**
High Precision Isotope Ratio Analysis of Sub-nanogram Samples Using MC-ICP-MS

5 **Chiaradia M & Fontboté L:**
Separate Lead Isotope Analyses of Whole Rock Leach and Residue Fractions to Characterize Formation Processes and Post-formation Evolutions of Magmatic and Metamorphic Lithologies

6 **Fialin M, Wagner C & Humler E:**
Direct Determination of Ferrous-Ferric Concentrations with the Electron Microprobe

7 **Khodakovsky I, Morzhukhina S, Uspenskaya V, Chermnykh L, Frontasyeva M & Gundorina S:**
Nuclear and Related Analytical Techniques Used to Study Anthropogenic Impact on the River Sister in the Vicinity of the Town of Klin (Moscow Region, Russia)

8 **Košler J, Tubrett M & Sylvester P:**
Precise and Accurate U-Pb Laser Ablation ICPMS Dating of Monazite

9 **Milton JA, Taylor R, Warneke T, Nesbitt R, Croudace I & Warwick P:**
Measurement of Pu Isotopes at Ultra-trace Levels Using Multi-collector ICP-MS

10 **Morrison J:**
Continuous Flow Pyrolysis Techniques for the Isotopic Measurements of Oxygen-Deuterium in Waters and Organic Compounds

11 **Pike AW, Hedges RE & vanCalsteren P:**
A New Approach to U-series Dating of Bone Using TIMS

12 **Rouxel O, Ludden J, Fouquet Y & Carignan J:**
Natural Variations of Selenium Isotopes Determined by Multicollector Plasma Source Mass Spectrometry: Application to Seafloor Hydrothermal Systems

13 **Schoenberg R, Nagler TF & Kramers J:**
High Precision Re-Os Isotope Determinations of Natural Rock and Mineral Samples Using Multicollector ICP-MS

14 **Sharma AL, Alard O, Elhlou S & Pearson NJ:**
Evaluation of Perchloric Versus Nitric Acid Digestion for Precise Determination of Trace and Ultra Trace Elements by ICP-MS

15 **Siebert C, Nagler TF & Kramers J:**
Natural Molybdenum Isotope Fractionation Determined by Double-Spike MC-ICP-MS Mo Isotope Ratio Measurements

16 **Waight T, Baker J & Krogstad E:**
Rb Isotopic Analyses by MC-ICPMS Using Zr as a Fractionation Monitor: Initial Results and Potential Applications to Improved Rb-Sr Geochronology

17 **Willigers BJ, Krogstad EJ, Baker J & Peate DW:**
Precise and Accurate Pb-Pb Dating of Apatite, Sphene and Monazite *in situ* by High Mass Resolution LAM-MC-ICPMS

18 **Wombacher F, Rehkämper M, Mezger K & Münker C:**
Cadmium Stable Isotope Measurements by MC-ICPMS

19 **Xu Z & Lin S:**
Determination of Trace Elements in Geological Samples by the Combination of Flow Injection-liquid-liquid Extraction and Inductively Coupled Plasma Atomic Emission Spectrometry

(Symposium O Continued in Session Fr:am on Page 69)

Symposium B
Chemistry and Dynamics of the Earth

Convenors: George Helffrich & Bernie Wood.
Location: Clarendon Lindemann.

09:00 **Hanyu T & Nakamura E:**
Sr and Nd Isotopic Systematics of HIMU by Analyses of Clinopyroxene Phenocrysts

09:15 **Kurz M:**
Noble Gas Evidence for Undegassed Terrestrial Mantle

09:30 **van Keken P & Ballentine C:**
Heat and Helium: A Numerical Investigation of Mantle Heterogeneity Lengthscale

09:45 **Davies GF & Mériaux C:**
KEYNOTE Possible Causes of Trace-Element Stratification in the Mantle

10:15 **Ozima M:**
Origin of Mantle He and Implications for Mantle Fluid-flow

10:30 **Discussion:**

10:45 **Marty B & Dauphas N:**
Nitrogen Isotope Systematics of the Mantle and the Fate of Organic Matter Through Time

11:00 **Bouman C, Elliott TR, Vroon PZ & Pearson DG:**
Li Isotope Evolution of the Mantle from Analyses of Mantle Xenoliths

11:15 **Lee C, Yin Q, Rudnick R & Jacobsen S:**
The Role of Lithospheric Mantle in Continent Stability: Re-Os Isotopic Mapping of the Upper Mantle in Southwestern USA

11:30 **Kadik A:**
The Oxygen Budget of the Earth and the Oxidation State of the Archean Upper Mantle

11:45 **Jacob D, Viljoen F, Grassineau N & Jagoutz E:**
Remobilization of Ancient Material within the Subcratonic Lithosphere

Symposium E
Biological Geochemistry

Convenors: Matthew Collins, Derek Lovely & Rob Raiswell.
Location: Oxford University Museum.

09:00 **Hornibrook E, Longstaffe F & Fyfe W:**
Biogeochemical Processes Governing the Stable Carbon-Isotope Compositions of CH_4 and CO_2 in Freshwater Wetlands

09:15 **Werne JP & Hollander DJ:**
Anomalous Carbon Isotope Biogeochemistry in the Cariaco Upwelling System: Balancing the Effects of Biological and Oceanographic Processes

09:30 **Dittrich M, Kurz P & Wehrli B:**
Calcite Bio-mineralisation by Picoplankton Cultures from Lake Lucerne

09:45 **Welch SA, Skatvold AM, Labrenz M, Druschel GK, Thomsen-Ebert T & Banfield JF:**
Biogenic Carbonate Precipitation by a Planktonic Microbial Population

10:00 **van Lith Y, Vasconcelos C, Warthmann R & McKenzie J:**
Role of Sulfate Reducing Bacteria During Microbial Dolomite Precipitation as Deduced from Culture Experiments

10:15 **Bailey A & Roberts H:**
Controls on Minor Element Compositions of Early Diagenetic Siderites and Dolomites in the Mississippi River Delta Plain

10:30 **Schippers A & Jørgensen BB:**
Oxidation of FeS_2 and FeS by MnO_2 in Marine Sediments

10:45 **Bottrell S, Parkes J & Raiswell R:**
Deep Anoxic Pyrite Oxidation and Stimulation of Bacterial Activity in Marine Sediments

11:00 **Brüchert V, Neumann K & Jørgensen BB:**
Dynamics of Dissolved Inorganic and Organic Sulfides in Upwelling Sediments off Namibia

11:15 **Wortmann UG, Bernasconi SM, Boettcher ME & Hay WW:**
Extreme Sulfur Isotope Fractionations During (Single-step?) Bacterial Sulfate Reduction in Hypersulfidic Interstitial Waters of the Great Australian Bight, ODP Leg 182

11:30 **Severmann S, Parkes RJ, Cragg BA, Telling J, Rhodes J, Mills RA & Palmer MR:**
The Geomicrobiology of a Relict Sulphide Deposit: Extending the Boundaries of the Submarine Hydrothermal Ecosystem

11:45 **Grimes S, Butler I, Davies K, Brock F, Edwards D & Rickard D:**
Pyritisation of Plant Axes from the London Clay: Pyrite Textures and their Importance to Understanding the Mechanism of Fossilisation

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Symposium F
Ocean Circulation: Past and Present

Convenors: Gideon Henderson & Bill Jenkins.
Location: Physical Chemistry.

09:00 **Marotzke J:**
KEYNOTE Understanding Large-Scale Oceanic Transport Processes

09:30 **Rodgers K, Dutay J, Orr J, Monfray P, Madec G, Peacock S & Key R:**
Transient Tracers and Interannual Variability in the Pacific Subtropical Cell

09:45 **Hillaire-Marcel C, Ghaleb B, Simonetti A & Griepy C:**
Western Boundary Undercurrent Control of Th-isotope Fluxes in the Labrador Sea Based on MC-ICP-MS Measurements of Total ^{230}Th and ^{232}Th in 5-Litre Water Samples

10:00 **Hamelin B, Alleman L, Veron A & Nicolas E:**
Transient Isotopic Variations of Pollutant Lead in the Mediterranean Sea

10:15 **Discussion:**

10:30 **Rickaby REM, Schrag DP, Flugge A, Riebesell U & Zondervan I:**
Cultural Perspectives on Sr/Ca in Coccolithophorids

10:45 **Vance D, Henderson GM, Burton KW & Slowey NC:**
Neodymium in Sedimentary Foraminifera Records the Isotopic Composition of Surface Seawater

11:00 **Reynolds B, Henderson G & Burton K:**
Tracing Holocene Sources of North Atlantic Deep-waters Using Nd-isotopes in Bahamas Slope Sediments

11:15 **Staubwasser M & Henderson GM:**
Investigation of ^{226}Ra/Ba Dating of Marine Carbonate by TIMS

11:30 **Eisenhauer A, Liebetrau V, Gussone N, Wörner G & Hansen BT:**
The Application of $^{226}Ra_{exc.}$/Ba-Ratios for Dating of Baltic Ferromanganese Concretions

Symposium I
Mineral Surfaces and Reactions

Convenors: Andrew Putnis & Vala Ragnarsdottir.
Location: Zoology A.

09:00 **Eggleston C, Samson S, Higgins S, Stack A & Pribyl R:**
KEYNOTE A New Look at an Old Idea: The Structure of Oxide Mineral Surfaces and the Role of Metal Centers in Intermediate Co-ordination Environments as Adsorbed Ions

09:30 **Nagy K, Schlegel M, Cheng L, Fenter P & Sturchio N:**
Alteration of Muscovite to a Mg-Clay

09:45 **Sturchio NC, Fenter P & Teng HH:**
New Evidence of Orthoclase Dissolution Mechanisms by In Situ X-Ray Reflectivity and Atomic Force Microscopy

10:00 **Samson SD & Eggleston CM:**
Nonsteady State Hematite Dissolution: HAFM and STM Observations

10:15 **Oelkers EH, Gauthier J & Schott J:**
An Experimental Study of the Dissolution Mechanism and Rates of Muscovite

10:30 **Petit J, Angeli F, Boscarino D, Della Mea G & Boizot B:**
Influence of Calcium on the Dissolution Behaviour of Sodium Aluminosilicate Glasses

10:45 **Wogelius RA, Dysthe DK, Tang CC & Nield AA:**
Pressure Solution Studied *In Situ* via X-ray Reflectivity

11:00 **Stipp S:**
Toward a Conceptual Model of the Calcite Surface

11:15 **Pina CM, Becker U & Fernández-Díaz L:**
Epitaxial Growth of Gypsum on Anhydrite: In Situ AFM Observations and Computer Calculations

11:30 **Le Guern C, Baranger P, Conil P, Negrel P, Brach M, Bodenan F & Crouzet C:**
Arsenic and Rare Earth Elements Trapping by Carbonates and Hydrous Iron Oxides Precipitates Generated by Degassing and Oxidation of Mineralised Waters

11:45 **Higgins S, Bosbach D, Eggleston C & Knauss K:**
Experimental Measurements and Modelling of Fundamental Attachment and Detachment Reactions on Barium Sulphate (001) Using Hydrothermal Scanning Probe Microscopy

Symposium J

Mantle Dynamics and Melting

Convenors: Tim Elliott & Erik Hauri.
Location: Clarendon Martin Wood.

09:00 **Reisberg L, Lorand J, Bedini RM & Bodinier J:**
Os Isotopic and PGE Results from Spinel Peridotites of the East African Rift

09:15 **Alard O, Pearson NJ, Reisberg L, Lorand J, Griffin WL & O'Reilly SY:**
Os Isotope Systematics of the Massif Central Mantle Lithosphere: In-situ and Whole-rock Studies

09:30 **Richardson SH, Shirey SB, Harris JW & Carlson RW:**
Re-Os Systematics of Sulphide Inclusion Bearing Diamonds from Continental Mantle Roots

09:45 **Brügmann G, Rehkämper M, Mezger K & Hofmann A:**
Os Isotopic Composition and Abundance of Highly Siderophile Elements in Mantle Peridotites and Dikes from the Ivrea Zone in Italy

10:00 **Discussion:**

10:15 **Blichert-Toft J, Ionov DA & Albarède F:**
The Nature of the Sub-Continental Lithospheric Mantle: Hf Isotope Evidence from Garnet Peridotite Xenoliths from Siberia

10:30 **Dowall D, Nowell G, Pearson DG & Kjarsgaard B:**
The Nature of Kimberlite Source Regions: A Hf-Nd Isotopic Study of Slave Craton Kimberlites

10:45 **Schmidberger S, Simonetti A & Francis D:**
Lu-Hf Isotope Systematics for Peridotite Xenoliths from Somerset Island Kimberlites: Evidence for Archean Lithosphere beneath Arctic Canada

11:00 **Bizzarro M & Stevenson RK:**
Nature of the Sub-Continental Mantle Under the North Atlantic Craton: Evidence from Peridotite Xenoliths of the Safartoq Area, Southwestern Greenland

11:15 **McDade P & Harte B:**
Roberts Victor Eclogites with a Spinel-Facies Mantle Signature

11:30 **Bouikine A, Trieloff M, Hopp J & Altherr R:**
Argon: A Tracer of Mantle Metasomatism Recorded by Xenoliths from the Uwayrid Volcanic Field, Saudi Arabia

11:45 **Korotchantseva E, Trieloff M & Hopp J:**
Tracing Mantle Metasomatism of Zabargad (Red Sea) Peridotites by the ^{40}Ar-^{39}Ar Technique

Symposium N

Low Temperature and Metamorphic Geochemistry and Geochronology

Convenor: Nigel Harris.
Location: Zoology B+C.

09:00 **Pearson DG, Bulanova G, Shirey S, Carlson R, Milledge J & Barashkov Y:**
Re-Os Isotope Constraints on the age of Siberian Diamonds

09:15 **Stein HJ, Markey RJ & Morgan JW:**
Robust Re-Os Molybdenite Ages for the Hemlo Au Deposit, Superior Province, Canada

09:30 **Villa IM, Ruggieri G & Puxeddu M:**
Geochronology of Heterogeneous Minerals: 3. Biotites from the Larderello Geothermal Field

09:45 **Whitehouse M:**
Combining in Situ Zircon REE and U-Th-Pb Geochronology: A Petrogenetic Dating Tool

10:00 **Bacon CR, Lowenstern JB, Persing HM, Wooden JL & Donnelly-Nolan JM:**
Late Pleistocene Zircons from Cascades arc Volcanoes Dated by U-Th Analysis with SHRIMP RG

10:15 **Corfu F:**
U-Pb Geochronology of the Lofoten-Vesteraalen AMCG Suite, Northern Norway

10:30 **Scherer E, Münker C & Mezger K:**
The Decay Constant of ^{176}Lu Determined by Calibration Against the U-Pb System in the Phalaborwa Carbonatite

10:45 **Pidgeon RT, Nemchin AA & Kinny PD:**
Fir-tree and Nebulously Zoned Zircons from Granulite Facies Rocks: Evidence for Zircon Growth and Interaction with Metamorphic Fluids

11:00 **Poller U, Huth J & Hoppe P:**
What Causes the Changes in Cathodoluminescence Intensity in Natural Zircons?

11:15 **Zheng Y, Li S & Wang Z:**
Oxygen Isotope Constraints on the Equilibration of Radiogenic Isotope Systems in Minerals: Implications for Metamorphic Geochronology

11:30 **Alexandrov P, Ruffet G, Cheilletz A & Féraud G:**
Saddle Shaped ^{40}Ar/^{39}Ar Age Spectra and Muscovite Recrystallization

11:45 **Kumar A, Gopalan K & Rajagopalan G:**
Mesoproterozoic Age of the Vindhyan Sediments, Central India from Glauconite Rb-Sr Systematics

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Symposium O
Open Symposium

Convenor: Nigel Harris.
Location: Inorganic Chemistry.

09:00 **Perini G, Tepley III FJ, Davidson JP & Conticelli S:**
The Origin of K-Feldspar Megacrysts Hosted in Alkaline Potassic Rocks from post-Orogenic Setting: Constraining the Interaction between high-K calc-Alkaline and Alkaline Magmas

09:15 **Nex P, Cawthorn G & Kinnaird J:**
Decoupling of Major and Trace Elements During the Intrusion of new Magma: The Main Zone of the Western Bushveld Complex

09:30 **Sensarma S, Palme H, Deloule E & Mukhopadhyay D:**
Evidence of Silicate Liquid Immiscibility in the Early Proterozoic Andesitic Rock, Dongargarh Supergroup, Central India and Possible Tectonic Implication

09:45 **Davidson J, Hassanzadeh J, Berzins R, Pandamouz A, Turrin B & Young A:**
Magmagenesis and Evolution at Damavand Volcano, Iran

10:00 **Tonarini S, Civetta L, D'Antonio M, Ferrara G, Leeman WP & Necco A:**
B/Nb and $\delta^{11}B$ Systematics in the Phlegrean Volcanic District (PVD) and Aeolian Islands (relationship between Calc-alkaline and Potassic Orogenic Magmatism in Southern Italy)

10:15 **Schaltegger U, Zeilinger G, Frank M & Burg J:**
Formation of Juvenile Island arc Crust Through Melting of Sub-arc Mantle: Precise U-Pb Ages and Hf Isotopes from a Fossil Crust-mantle Transition in the Kohistan Complex (Northern Pakistan)

10:30 **Shaw A, Hilton D, Macpherson C & Sinton J:**
Evidence for Nucleogenic Neon in High $^{3}He/^{4}He$ Lavas from the Manus Back-arc Basin

10:45 **Isnard H, Gariepy C & Stevenson RK:**
Sm-Nd and Pb-Pb Isotopic Characterization of the Late Archean La Grande Subprovince, Quebec: Significance to the Crustal Development of the Eastern Superior Craton

11:00 **Shchekina TI, Gramenitskiy EN, Batanova AM & Kurbyko TA:**
Reactionary Phenomena at the Phase Boundary of Granitic Melt and Basic Rocks

11:15 **Tiepolo M, Tribuzio R, Bottazzi P & Vannucci R:**
Primary Liquid Composition in Continental Collisional Setting: Inferences from the Adamello and Val Masino-Bregaglia Intrusions (Central Alps)

11:30 **Andersen T, Andresen A & Sylvester AG:**
Nature and Distribution of Deep Crustal Reservoirs in the South-western Part of the Baltic Shield: Evidence from Nd, Sr and Pb Isotope Data on Late Sveconorwegian Granites

11:45 **Jung S, Mezger K & Hoernes S:**
Geochronology and Isotope Geochemistry of Lower Crustal Melts from the Pan-African Damara Belt

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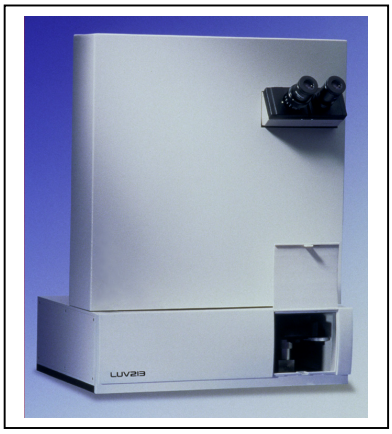

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Vance D	**H(Mo:pm:23)ZB**	**1040**
Vance D	**O(Th:am:12)IC**	**1042**
Vander Putten E	E(Th:PO:22)PO	626
Vane C	E(Mo:am:08)UM	115
Vannucci R	O(Fr:am:10)IC	1006
Vannucci R	C(Tu:am:02)CT	880
Vannucci R	C(Mo:PO:12)PO	624
Vannucci R	J(Tu:PO:32)PO	1120
Varga A	O(Tu:PO:13)PO	1045
Vargas M	K(Mo:am:09)ES	649
Varol E	O(Tu:PO:14)PO	1047
Vasconcelos C	E(Fr:am:05)UM	1038
Vasconcelos P	H(Mo:pm:21)ZB	961
Vaselli O	L(Mo:PO:02)PO	261
Vaselli O	G(Mo:PO:42)PO	714
Vaselli O	G(Mo:PO:39)PO	1048
Vaselli O	G(Mo:PO:19)PO	712
Vaselli O	G(Mo:PO:05)PO	224
Vaughan DJ	I(Th:pm:23)ZA	393
Vaughan DJ	I(Th:am:10)ZA	918
Vax A	D(Mo:pm:23)PC	194
Vdovic R	D(Tu:PO:10)PO	1049
Veldkamp T	H(Mo:pm:25)ZB	1057
Vennemann T	C(Mo:PO:06)PO	344
Vennemann TW	J(Tu:PO:23)PO	771
Vennemann TW	E(Th:PO:04)PO	230
Vennemann TW	D(Tu:PO:10)PO	1049
Ver LMB	E(Tu:pm:28)UM	638
Verchovsky A	**A(Mo:am:09)CL**	**1050**
Veron A	F(Fr:am:05)PC	476
Vetõ I	E(Th:PO:34)PO	1052
Vigier N	**H(Tu:am:09)ZB**	**1053**
Vignaud C	E(Mo:pm:26)UM	835
Vilas F	I(Th:PO:14)PO	418
Viljoen F	B(Fr:am:12)CL	549
Viljoen F	O(Mo:am:05)IC	307
Villa IM	**N(Fr:am:03)ZB**	**1054**
Villar P	I(Th:PO:14)PO	418
Vinograd VL	**L(Mo:am:11)ZB**	**1055**
Viville D	H(Tu:PO:02)PO	168
Vladykin N	J(Tu:PO:01)PO	162
Vlasenko N	M(Tu:PO:02)PO	126
Vlastélic I	**D(Mo:am:08)PC**	**1056**
Vocadlo L	B(Th:pm:27)CL	818
von Blanckenburg F	H(Mo:pm:24)ZB	884
von Blanckenburg F	**H(Mo:pm:25)ZB**	**1057**
von Blanckenburg F	E(Th:PO:32)PO	1058
Vreeland R	**K(Mo:am:12)ES**	**1059**
Vroon PZ	C(Mo:PO:25)PO	1060
Vroon PZ	B(Fr:am:09)CL	239
W		
Waber HN	G(Mo:PO:02)PO	120
Wada H	**G(Mo:am:09)ZA**	**1061**
Wade J	**B(Th:pm:25)CL**	**1062**
Waelbroeck C	F(Th:am:05)PC	612
Wagner C	O(Th:PO:06)PO	400
Wagner C	**O(Tu:am:06)IC**	**1063**
Wagner C	J(Tu:PO:31)PO	1064
Wagner C	J(Tu:PO:06)PO	235
Waight T	O(Th:PO:16)PO	1065
Waight T	O(Th:PO:02)PO	178
Walker RJ	A(Tu:am:10)CL	718
Walther JV	**G(Mo:am:03)ZA**	**1066**
Wang K	C(Mo:PO:26)PO	1067
Wang R	D(Mo:am:06)PC	247
Wang S	H(Tu:PO:15)PO	557
Wang X	O(Tu:am:12)IC	456
Wang Z	N(Fr:am:10)ZB	1131
Wang Z	O(Tu:am:01)IC	1130
Ward JAM	M(Th:am:10)ES	1068
Warneke T	O(Th:PO:09)PO	710
Warner J	I(Th:PO:38)PO	1070
Warner JA	I(Th:am:03)ZA	461
Warthmann R	E(Fr:am:05)UM	1038
Wartho J	J(Th:am:01)CM	573
Warwick P	O(Th:PO:09)PO	710
Watson D	E(Mo:pm:21)UM	395
Watt J	M(Tu:pm:21)ES	695
Weare JH	**L(Mo:am:09)ZB**	**1071**
Webb E	**N(Th:pm:26)ZB**	**1072**
Webb J	D(Mo:am:02)PC	539
Weber A	K(Mo:PO:05)PO	1134
Weber EJ	I(Th:PO:20)PO	524
Webster J	**M(Tu:am:03)ES**	**1073**
Wefer G	D(Tu:am:05)PC	614
Wefer G	D(Tu:am:12)PC	584
Wehausen R	D(Tu:PO:11)PO	1074
Wehrli B	E(Fr:am:03)UM	352
Weis D	J(Tu:PO:21)PO	681
Weissel J	H(Tu:PO:33)PO	951
Welch S	M(Tu:am:04)ES	406
Welch SA	M(Tu:am:01)ES	185
Welch SA	**E(Fr:am:04)UM**	**1075**
Welch SA	P(We:am:02)AB	186
Weldeab S	D(Tu:PO:12)PO	1076
Wenzhöfer F	E(Tu:am:04)UM	791
Werne J	K(Mo:pm:27)ES	770
Werne JP	**E(Fr:am:02)UM**	**1077**
Wesolowski D	I(Th:am:07)ZA	658
Wesolowski D	I(Th:PO:28)PO	846
Wesolowski DJ	**M(Tu:pm:24)ES**	**1078**
West AJ	H(Tu:PO:36)PO	1079
Weyer S	**O(Mo:am:10)IC**	**1080**
Weyer S	A(Mo:am:05)CL	731
Weyer S	O(Th:pm:27)IC	732
Wheeler K	C(Mo:pm:23)CT	734
Whitby J	G(Mo:PO:43)PO	441
Whitby J	**A(Mo:am:10)CL**	**1081**
White A	**H(Tu:am:01)ZB**	**1082**
White N	H(Tu:PO:37)PO	1083
White RV	C(Mo:PO:23)PO	1000
White RV	**O(Mo:am:04)IC**	**1084**
White SP	G(Mo:pm:26)ZA	727
Whitehouse M	**N(Fr:am:04)ZB**	**1086**
Whiteley N	F(Th:pm:27)PC	409
Widdel F	E(Th:pm:22)UM	844
Widdowson M	H(Tu:PO:20)PO	674
Widdowson M	**O(Tu:am:08)IC**	**1087**
Widerlund A	N(Th:pm:21)ZB	146
Widerlund A	N(Th:pm:22)ZB	540
Widom E	C(Mo:PO:27)PO	1088
Wiechert U	O(Th:am:04)IC	474
Wieland E	I(Th:PO:33)PO	1009
Wieler R	A(Mo:am:04)CL	643
Wieler R	H(Mo:pm:27)ZB	882
Wieler R	H(Tu:PO:23)PO	747
Wieler R	A(Mo:pm:25)CL	499
Wiersberg T	G(Mo:PO:44)PO	1089
Wikberg P	G(Mo:PO:06)PO	289
Wilde S	J(Tu:PO:33)PO	1132
Wilhelms A	E(Th:pm:23)UM	619
Willan RC	G(Mo:PO:46)PO	1090
Willan RC	O(Tu:PO:15)PO	1092
Williams CA	C(Mo:PO:28)PO	1094
Williams CT	G(Mo:PO:32)PO	939
Williams HM	**J(Th:pm:24)CM**	**1095**
Williams-Jones AE	G(Mo:PO:47)PO	706
Williams-Jones AE	**G(Tu:am:07)ZA**	**153**
Willigers B	O(Th:PO:02)PO	178
Willigers BJ	O(Th:PO:17)PO	1096
Wills J	O(Th:am:07)IC	899
Wills J	O(Th:pm:24)IC	477
Wilson J	G(Mo:PO:48)PO	1097
Wilson M	**J(Th:pm:23)CM**	**1098**
Wilton D	O(Th:am:06)IC	602
Windley B	J(Tu:PO:07)PO	262
Winsor L	M(Th:am:09)ES	349
Wogelius RA	**I(Fr:am:08)ZA**	**1099**
Wogelius RA	I(Th:pm:23)ZA	393
Wolff-Boenisch B	**F(Th:am:12)PC**	**1100**
Wolthers M	**I(Th:pm:25)ZA**	**1101**
Wombacher F	A(Mo:am:05)CL	731
Wombacher F	O(Th:PO:18)PO	1102
Wood B	J(Th:am:01)CM	573
Wood B	B(Th:pm:25)CL	1062
Wood BJ	J(Tu:am:10)CM	616
Wood BJ	B(Th:PO:12)PO	593
Wooden JL	N(Fr:am:05)ZB	174
Woolhouse KJ	M(Tu:PO:14)PO	820
Woolum D	A(Tu:pm:21)CL	814
Woolum DS	A(Tu:am:06)CL	804
Wörner G	F(Fr:am:11)PC	377
Wortmann UG	**E(Fr:am:10)UM**	**1103**
Wright I	A(Mo:am:09)CL	1050
Wu Y	E(Th:PO:35)PO	1104
Wynn-Williams DD	**K(Mo:pm:23)ES**	**1105**
Wysoczanski R	O(Mo:am:01)IC	480
X		
Xiao C	M(Tu:pm:24)ES	1078
Xiao Y	**N(Th:am:07)ZB**	**1106**
Xie Q	B(Th:PO:16)PO	1107
Xu X	O(Tu:am:12)IC	456
Xu Z	O(Th:PO:19)PO	1108
Y		
Yamada M	O(Mo:PO:01)PO	147
Yamada M	O(Mo:PO:11)PO	1109
Yamaguchi KE	O(Tu:PO:16)PO	1110
Yamazaki T	D(Tu:PO:02)PO	161
Yanes C	H(Tu:PO:35)PO	1014
Yao Y	J(Th:pm:25)CM	1137
Yardley B	**G(Mo:am:12)ZA**	**187**
Yaxley G	J(Tu:pm:26)CM	454
Yee N	**M(Tu:am:06)ES**	**1111**
Yin Q	B(Fr:am:10)CL	631
Yin Q	**O(Th:am:08)IC**	**1113**
Yin Q	**A(Mo:am:02)CL**	**1112**
Yokochi R	**O(Tu:am:04)IC**	**1114**
Yokoyama Y	D(Tu:pm:27)PC	1115
Yokoyama Y	D(Tu:pm:26)PC	387
Yoshida H	N(Th:pm:23)ZB	981
Yoshida T	I(Th:PO:39)PO	1116
Young A	O(Fr:am:04)IC	334
Young E	A(Mo:pm:28)CL	1133
Young ED	**A(Tu:am:04)CL**	**1117**
Young SD	M(Tu:pm:21)ES	695
Yuasa M	C(Mo:am:02)CT	544
Yuri O	J(Tu:PO:01)PO	162
Yusta I	M(Tu:PO:11)PO	542
Z		
Zabaleta A	M(Tu:PO:11)PO	542
Zabel M	E(Th:PO:13)PO	510
Zachara J	I(Th:PO:30)PO	857
Zachara JM	I(Th:PO:10)PO	359
Zack T	C(Mo:PO:29)PO	1118
Zakaznova-Iakovleva V	G(Tu:am:05)ZA	1119
Zakirov I	G(Tu:am:06)ZA	807
Zanetti A	C(Mo:PO:12)PO	624
Zanetti A	J(Tu:PO:32)PO	1120
Zaykov V	C(Mo:PO:22)PO	993
Zedgenizov D	O(Mo:PO:12)PO	1121
Zeilinger G	O(Fr:am:06)IC	885
Zellmer GF	**C(Tu:pm:23)CT**	**298**
Zengler K	E(Th:pm:22)UM	844
Zetterström L	G(Mo:PO:49)PO	1122
Zhang G	J(Tu:PO:33)PO	1132
Zhang G	N(Th:am:11)ZB	301
Zhang H	**O(Mo:am:02)IC**	**1123**
Zhang H	O(Mo:PO:13)PO	1124
Zhang H	E(Th:PO:23)PO	723
Zhang H	**E(Tu:am:10)UM**	**1125**
Zhang M	J(Th:pm:27)CM	760
Zhang R	**F(Th:pm:22)PC**	**1127**
Zhao L	O(Mo:PO:13)PO	1124
Zheng Y	G(Mo:PO:14)PO	435
Zheng Y	C(Mo:PO:30)PO	1128
Zheng Y	**N(Fr:am:10)ZB**	**1131**
Zheng Y	**G(Tu:am:02)ZA**	**1129**
Zheng Y	**O(Tu:am:01)IC**	**1130**
Zhou D	H(Tu:PO:15)PO	557
Zhou M	O(Mo:am:02)IC	1123
Zhou X	O(Mo:am:02)IC	1123
Zhou X	O(Mo:PO:13)PO	1124
Zhou X	J(Tu:PO:33)PO	1132
Zhou X	N(Th:am:11)ZB	301
Zhu X	O(Th:pm:23)IC	680
Zhu X	**A(Mo:pm:28)CL**	**1133**
Zhu XK	O(Th:am:01)IC	759
Zhuravlev DZ	J(Th:pm:28)CM	226
Ziebis W	K(Mo:PO:05)PO	1134
Ziegler K	H(Tu:PO:38)PO	1135
Zindler A	J(Mo:am:06)CM	372
Zolensky M	A(Mo:pm:22)CL	223
Zondervan I	F(Fr:am:07)PC	845
Zou H	J(Tu:PO:34)PO	1136
Zou H	**J(Th:pm:25)CM**	**1137**
Zumsteg I	D(Mo:pm:26)PC	371

Session Mo:am 09:00 - 12:00 Monday 4th September, 2000

	Symposium	G	J	K	L	O
	Title:	Crustal Fluids	Mantle Dynamics and Melting	Life in Extreme Environments	Computational Geochemistry	Open Symposium
	Location	ZA	CN	ES	ZB	IC
01	**09:00**	Aranovich	Hauri	Shock	Sprik	Handler
02	**09:15**					Zhang
03	**09:30**	Walther	Loubet	Amend	de Leeuw	Kadik
04	**09:45**	Lewis	Joron	Summit	Ojo	White
05	**10:00**	Matthews		Meyer	Becker	Chinn
06	**10:15**	McCaig	Eiler	Manning	Dysthe	Schmickler
07	**10:30**	Jamtveit	Elliott	Helgeson	Chialvo	Mueller
08	**10:45**	Nabelek	Smit	Russell		Koppers
09	**11:00**	Wada	Kempton	Lovley	Weare	Gautheron
10	**11:15**	Touret	Regelous	Konhauser	Tossell	Weyer
11	**11:30**	Gleeson	Abouchami	Rosing	Vinograd	Luguet
12	**11:45**	Banks	Hofmann	Vreeland	Allan	McDade
	Posters	Monday	Tuesday	Monday	Monday	Monday

Session Mo:am 09:00 - 12:00 Monday 4th September, 2000

	Symposium	A	C	D	E	
	Title:	Planets and Meteorites	Subduction Zones	Rapid Climate Change	Biological Geochemistry	
	Location	CL	CT	PC	UM	
01	**09:00**	Osmaston	Revillon	Sharma	Knoll	
02	**09:15**	Yin	Ishizuka	Ihlenfeld		
03	**09:30**	McKeegan	Morris	Tamburini	Engel	
04	**09:45**	Leya	Kempton	Kaljo	McDonald	
05	**10:00**	Münker	Dosseto	Pomies	Butterfield	
06	**10:15**	Sanloup	Macpherson	Brassell	Love	
07	**10:30**	Dauphas	Brueckner	Nagler	Fleck	
08	**10:45**	Henkel		Vlastélic	Abbott	
09	**11:00**	Verchovsky	Davies	Sarma	Schouten	
10	**11:15**	Whitby		Cohen	van Duin	
11	**11:30**	Miller	Bourdon	Huang	Nguyen	
12	**11:45**	Galy	Asmerom	Beets	Schall	
	Posters	Monday	Monday	Tuesday	Thursday	

Session Mo:pm 14:00-16:00 4th September, 2000

	Symposium	G	H	J	K	O
	Title:	**Crustal Fluids**	**Weathering and Erosion**	**Mantle Dynamics and Melting**	**Life in Extreme Environments**	**Open Symposium**
	Location	**ZA**	**ZB**	**CN**	**ES**	**IC**
21	**14:00**	Reyes	Stone	Spiegelman	Catling	McCulloch
22	**14:15**					Arvidson
23	**14:30**	Kastner	Vance	Maclennan	Wynn-Williams	Decitre
24	**14:45**	Teagle	Schaller	Sobolev	Gillet	Lancelot
25	**15:00**	Arnórsson	von Blanckenburg	Bryce	Benzerara	Lasaga
26	**15:15**	Mroczek	Négrel	Heumann	Haese	Smedley
27	**15:30**	Heinrich	Schaefer	Saal	Pancost	Lemarchand
28	**15:45**	James	Tucker	Hawkesworth	Bouloubassi	Cave
	Posters	Monday	Tuesday	Tuesday	Monday	Monday

Session Mo:pm 14:00-16:00 September, 2000

	Symposium	A	C	D	E	
	Title:	Planets and Meteorites	Subduction Zones	Rapid Climate Change	Biological Geochemistry	
	Location	CL	CT	PC	UM	
21	**14:00**	Göpel	Parkinson	Fairchild	Farrimond	
22	**14:15**	Bodnar	Pearce	McGarry	Lee	
23	**14:30**	Luais	Mysen	Bar-Matthews	Swart	
24	**14:45**	Liu	Carmichael	McDermott	Kosler	
25	**15:00**	Heber	Green	Burns	Habermann	
26	**15:15**	Hopp		Eikenberg	Reiche	
27	**15:30**	Burgess	Fumagalli	Ménot	Richards	
28	**15:45**	Zhu	Bolfan-Casanova	Ayalon	Montgomery	
	Posters	Monday	Monday	Tuesday	Thursday	

Session Tu:am 09:00 - 12:00 Tuesday 5th September, 2000

	Symposium	G	H	J	M	O
	Title:	**Crustal Fluids**	**Weathering and Erosion**	**Mantle Dynamics and Melting**	**Pollution**	**Open Symposium**
	Location	**ZA**	**ZB**	**CN**	**ES**	**IC**
01	**09:00**	Manning	White	Büchl	Banfield	Zheng
02	**09:15**	Zheng		Snow		Matsumoto
03	**09:30**	Stefansson	Dia	Griselin	Webster	Kagi
04	**09:45**	Bailey	Sak	Graham	Fowle	Yokochi
05	**10:00**	Zakaznova-Iakovleva	Galy	Galer	Fein	Hatton
06	**10:15**	Pokrovski	Allègre		Yee	Wagner
07	**10:30**	Archibald			Templeton	Appora
08	**10:45**	Collings	Levasseur	Sims		Widdowson
09	**11:00**	Tagirov	Vigier		Stichbury	Moreira
10	**11:15**	Ragnarsdottir	France-Lanord	Landwehr	Pickett	Temel
11	**11:30**	Lin	Chabaux	Hellebrand	Brydie	Ballentine
12	**11:45**	Poitrasson	Dalai	Asimow	Öhlander	Griffin
	Posters	Monday	Tuesday	Tuesday	Tuesday	Tuesday

Session Tu:am 09:00 - 12:00 Tuesday 5th September, 2000

	Symposium	A	C	D	E	
	Title:	**Planets and Meteorites**	**Subduction Zones**	**Rapid Climate Change**	**Biological Geochemistry**	
	Location	CL	CT	PC	UM	
01	**09:00**	Allègre	Kaneoka	Tamburini	Mackenzie	
02	**09:15**	Quitté	Scambelluri	Ostertag-Henning		
03	**09:30**	Righter	Eiler	Moreno	Lehmann	
04	**09:45**	Young		Schefuss	Pfeifer	
05	**10:00**	Javoy	Turner	Lamy	Thamdrup	
06	**10:15**	Podosek	Suzuki	Arz	Dixit	
07	**10:30**	Hidaka	Godon	Cobb	Furukawa	
08	**10:45**	Lee		Boyle	Boudreau	
09	**11:00**	Sharkov	Rapp		Haas	
10	**11:15**	Morgan		Stott	Zhang	
11	**11:30**	Holzheid	Kamber	Thomson	Helz	
12	**11:45**	Kramers	Kerrick	Kim	O'Kane	
	Posters	Monday	Monday	Tuesday	Thursday	

Session Tu:pm 14:00 - 16:00 Tuesday 5th September, 2000

	Symposium	G	H	J	M	
	Title:	**Crustal Fluids**	**Weathering and Erosion**	**Mantle Dynamics and Melting**	**Pollution**	
	Location	**ZA**	**ZB**	**CN**	**ES**	
21	**14:00**	Candela	Ruddiman	Klemme	McGill	
22	**14:15**	Schwandner		Hirschmann	Hudson-Edwards	
23	**14:30**	Prinzhofer	Oxburgh		Charlet	
24	**14:45**	Kinnaird	Bickle	Francis	Wesolowski	
25	**15:00**	Cardellini	Huh	Gibson	Evans	
26	**15:15**	Ballentine	Ravizza	Green	Burke	
27	**15:30**	Cathles	Aléon	Nikogosian	Stephens	
28	**15:45**	Hanor	Frogner	Chavagnac	Hodson	
	Posters	Monday	Tuesday	Tuesday	Tuesday	

Session Tu:pm 14:00 - 16:00 Tuesday 5th September, 2000

	Symposium	A	C	D	E	
	Title:	Planets and Meteorites	Subduction Zones	Rapid Climate Change	Biological Geochemistry	
	Location	CL	CT	PC	UM	
21	**14:00**	Porcelli	Brophy	Cacho-Lascorz	Elskens	
22	**14:15**	Trieloff	Reid	Sanchez Goñi	Burkill	
23	**14:30**	Harrison	Charlier	Bard	Soetaert	
24	**14:45**	Gillet	Thomas	Mangini	Chou	
25	**15:00**	El Goresy	Rutherford	Robinson	Lancelot	
26	**15:15**	Fritz		Esat	Crucifix	
27	**15:30**	Farquhar	Rose	Yokoyama	Mackenzie	
28	**15:45**		Ruiz	Stirling	Lerman	
	Posters	Monday	Monday	Tuesday	Thursday	

Session Th:am 9:00-12:00 Thursday 7th September, 2000

	Symposium	J	M	N	O	
	Title:	Mantle Dynamics and Melting	Pollution	Metamorphism and Geochronology	Open Symposium	
	Location	CN	ES	ZB	IC	
01	**09:00**	Kelley	Criddle	Möller	O'Nions	
02	**09:15**	Burnard		Harlov	Bailey	
03	**09:30**	Barfod	Edwards	Foster	Hellstrom	
04	**09:45**	Hilton	Hall	Harris	Halliday	
05	**10:00**	Stuart	Roberts Rogers	Argles	Horstwood	
06	**10:15**		McCormick	Jenkin	Kosler	
07	**10:30**	Blundy	Slater	Xiao	Schwieters	
08	**10:45**	Burton		Dunai	Yin	
09	**11:00**	David	Diegor	Cosca	Pearson	
10	**11:15**	Dalton	Ward	Giorgis	Thirlwall	
11	**11:30**	Heaman	Bottrell	Chen	Palacz	
12	**11:45**	Ionov	Lenczewski		Vance	
	Posters	Tuesday	Tuesday	Thursday	Thursday	

Session Th:am 9:00-12:00 Thursday 7th September, 2000

	Symposium	B	E	F	I	
	Title:	Chemistry and Dynamics of the Earth	Biological Geochemistry	Ocean Circulation	Surfaces and Reactions	
	Location	CL	UM	PC	ZA	
01	**09:00**	Rehkämper	Bencheikh-Latmani	Sigman	Manceau	
02	**09:15**	Phipps Morgan	Lovley			
03	**09:30**	Kerrich	Banwart	McManus	Grolimund	
04	**09:45**	Masters	Brantley	Adkins	Brown, Jr.	
05	**10:00**		Arato	Labeyrie	Tadanier	
06	**10:15**	Stachel	Hallberg	Schrag	Sverjensky	
07	**10:30**	Thomas	Hamade		Machesky	
08	**10:45**		Scott	Hemming	Fenter	
09	**11:00**	Gasperini	Phoenix	Piotrowski	Traina	
10	**11:15**	Boehler	Van Cappellen	Goldstein	Shaw	
11	**11:30**	Albarède	Hyacinthe	Pichat	Valsami-Jones	
12	**11:45**	Allègre	Motelica-Heino	Wolff-Boenisch	Peaudecerf	
	Posters	Thursday	Thursday	Thursday	Thursday	

Session Th:pm 14:00-16:00 Thursday 7th September, 2000

	Symposium	J	M	N	O	
	Title:	Mantle Dynamics and Melting	Pollution	Metamorphism and Geochronology	Open Symposium	
	Location	CN	ES	ZB	IC	
21	**14:00**	Kirstein	Jones	Andersson	Cox	
22	**14:15**	Rogers	Milner	Ingri	Meffan-Main	
23	**14:30**	Wilson	Kruge	Takahashi	Matthews	
24	**14:45**	Williams	Schmidt	Van der Weijden	Hamester	
25	**15:00**	Zou	Seed	Thoenen	Jackson	
26	**15:15**	Tilton	Pourcelot	Webb	Barfod	
27	**15:30**	O'Reilly	Duffa	Kovalevskii	Münker	
28	**15:45**	Bogatikov	Peinerud	Melezhik	Klaue	
	Posters	Tuesday	Tuesday	Thursday	Thursday	

Session Th:pm 14:00-16:00 Thursday 7th September, 2000

	Symposium	B	E	F	I	
	Title:	Chemistry and Dynamics of the Earth	Biological Geochemistry	Ocean Circulation	Surfaces and Reactions	
	Location	CL	UM	PC	ZA	
21	**14:00**	Rubie	Graham	Schrag	Schoonen	
22	**14:15**	Harte	Richnow	Zhang	Bostick	
23	**14:30**	Hillgren	Larter	Picard	Farquhar	
24	**14:45**	Chabot	Petsch	Kenig	Cottnam	
25	**15:00**	Wade	Tadanier	Simons	Wolthers	
26	**15:15**	Jephcoat	Lower	Gleason	Butler	
27	**15:30**	Price	Edwards	Frank	Todd	
28	**15:45**	Sherman	Skidmore		Oelkers	
	Posters	Thursday	Thursday	Thursday	Thursday	

Session Fr:am 9:00-12:00 Friday 8th September, 2000

	Symposium	J	N	O		
	Title:	Mantle Dynamics and Melting	Metamorphism and Geochronology	Open Symposium		
	Location	CN	ZB	IC		
01	**09:00**	Reisberg	Pearson	Perini		
02	**09:15**	Alard	Stein	Nex		
03	**09:30**	Richardson	Villa	Sensarma		
04	**09:45**	Brügmann	Whitehouse	Davidson		
05	**10:00**		Bacon	Tonarini		
06	**10:15**	Blichert-Toft	Corfu	Schaltegger		
07	**10:30**	Dowall	Scherer	Shaw		
08	**10:45**	Schmidberger	Pidgeon	Isnard		
09	**11:00**	Bizzarro	Poller	Shchekina		
10	**11:15**	McDade	Zheng	Tiepolo		
11	**11:30**	Bouikine	Alexandrov	Andersen		
12	**11:45**	Korotchantseva	Kumar	Jung		
	Posters	Tuesday	Thursday	Thursday		

Session Fr:am 9:00-12:00 Friday 8th September, 2000

	Symposium	B	E	F	I	
	Title:	Chemistry and Dynamics of the Earth	Biological Geochemistry	Ocean Circulation	Surfaces and Reactions	
	Location	CL	UM	PC	ZA	
01	**09:00**	Hanyu	Hornibrook	Marotzke	Eggleston	
02	**09:15**	Kurz	Werne			
03	**09:30**	van Keken	Dittrich	Rodgers	Nagy	
04	**09:45**	Davies	Welch	Hillaire-Marcel	Sturchio	
05	**10:00**		van Lith	Hamelin	Samson	
06	**10:15**	Ozima	Bailey		Oelkers	
07	**10:30**		Schippers	Rickaby	Petit	
08	**10:45**	Marty	Bottrell	Vance	Wogelius	
09	**11:00**	Bouman	Brüchert	Reynolds	Stipp	
10	**11:15**	Lee	Wortmann	Staubwasser	Pina	
11	**11:30**	Kadik	Severmann	Eisenhauer	Le Guern	
12	**11:45**	Jacob	Grimes		Higgins	
	Posters	Thursday	Thursday	Thursday	Thursday	