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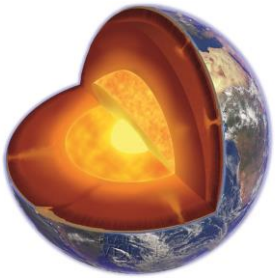


Deep Earth Processes:

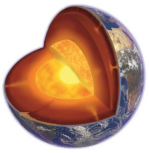
Windows on the workings of a planet

15 – 16 Sept 2014

Programme

Monday 15 Sept 2014

08.30	**Registration & tea & coffee (Main foyer & Lower Library)**
09.05	**Welcome**
	Session 1: EARTH'S CORE
	(Chair: Dr Sally Gibson. *Sponsor: British Geophysical Association*)
09.10	**Three potential solutions to the Core heat paradox**
	Keynote: John Hernlund (Tokyo Institute of Technology, Japan)
09.40	**Contstraints on the timing of late accretion from highly siderophile elements and W isotopes in the early rock record**
	Chris Dale (University of Durham, UK)
10.00	**Fe-Silicide-bearing Ureilite Parent Body: an analogue for the early building blocks of the Earth?**
	Hilary Downes (University College London_Birbeck, UK)
10.20	**Making the Moon from the Earth – an internally consistent isotopic and chemical model**
	Jon Wade (University of Oxford, UK)
10.40	**Tea, coffee, refreshments & posters (Lower Library)**



Session 2: STRUCTURE & COMPOSITION OF EARTH'S CORE

(Chair: Prof Simon Redfern. *Sponsor: Cambridge University Press*)

11.10 **Seismic structure of the Earth's inner core and its dynamical implications**

Invited: Arwen Deuss (University of Cambridge, UK)

11.40 **The melting curve of Ni to 1 Mbar**

Oliver Lord (University of Bristol, UK)

12.00 **Development of an early density stratification in the Earth's Core**

David Rubie (University of Bayreuth, Germany)

12.20 **Discussion**

12.35 **Sandwich lunch (provided) & posters (Lower Library)**

Session 3: LOWERMOST MANTLE

(Chair: Prof Simon Redfern. *Sponsor: Geological Society of London*)

13.25 **Introduction**

13.30 **The chemical composition of the lower mantle based on laboratory elasticity measurements**

Invited: Daniel Frost (University of Bayreuth, Germany)

14.00 **Partitioning of iron components between Mg-perovskite and post-perovskite**

Chris Mohn (University of Oslo, Norway)

14.20 **Constraining the electrical conductivity of the deep mantle from above and below**

Richard Holme (University of Liverpool, UK)

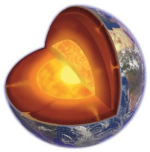
14.40 **Long wavelength structure of Earth's deep mantle from normal mode inversions in combination with geodynamic model comparisons**

Paula Koelemeijer (Cambridge)

15.00 **On the temporal evolution of large-scale mantle structure and its relation to Pangea assembly and breakup**

Shijie Zhong (University of Colorado at Boulder, USA)

15.20 **Tea, coffee, refreshments & posters (Lower Library)**



Session 4: TRANSITION ZONE

(Chair: Prof Mike Walter. *Sponsor: Mineral Physics Group, Mineralogical Society of Gt Britain & Ireland*)

15.50 **Effects of composition and temperature on the phase boundaries at 600-700 km depths**

Invited: Dan Shim (Arizona State University, USA)

16.20 **Density jump across the 410 and 660 km seismic discontinuity beneath China: A new constraint on long term mantle mixing and basalt-enriched transition zone**

Alex Song (University College London, UK)

16.40 **Evidence for the transport of water to the lower mantle from midmantle seismic anisotropy**

Andy Nowacki (University of Bristol, UK)

17.00 **A hydrous mantle transition zone indicated by ringwoodite included within diamond**
Invited: Graham Pearson (University of Alberta, Canada)

17.30 **Discussion**

17.45 – 19.00 **Drinks reception and posters (Lower Library)**

Tuesday 16 Sept 2014

08.30 **Registration, Tea & coffee (Main foyer & Lower Library)**

Session 5: UPPER MANTLE & MANTLE STRUCTURE

(Chair: Dr Saskia Goes. *Sponsor: Geological Society of London*)

08.55 **Welcome**

09.00 **Seismic evidence for sulphide melt in the upper mantle**

Invited: Mike Kendall (University of Bristol, UK)

09.30 **Ferric iron and its influence on Earth's deep structure**

Robert Myhill (University of Bayreuth, Germany)

09.50 **Global radially anisotropic whole-mantle structure from multiple datasets**

Ana Ferreira (University College London, UK)

10.10 **Tea, coffee, refreshments & posters (Lower Library)**

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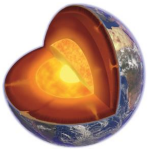

Session 6: MANTLE VOLATILES

(Chair: Prof Mike Walter. *Sponsor: Geochemistry Group, Mineralogical Society of Gt Britain & Ireland*)

10.40 **The noble gas record of terrestrial volatile origin and reservoir interaction.**

Invited: Chris Ballentine (University of Oxford, UK)

11.10 **Understanding δ15N variations in the mantle using internal variabilities in deep mantle diamonds**

Rebecca Southworth (University College London, UK)

11.30 **Probing the water content of the Earth's mantle**

Jennifer Brooke (University of Edinburgh)

11.50 **Helium diffusion in mantle minerals from first principles**

Invited: John Brodholt (University College London, UK)

12.20 **Discussion**

12.35 **Sandwich lunch (provided) & posters (Lower Library)**

Session 7: SURFACE CONSTRAINTS ON DEEP EARTH PROCESSES

(Chair: Dr Sally Gibson. *Sponsor: Volcanic & Magmatic Studies Group, Geological Society of London*)

13.35 **Introduction**

13.40 **Relating the chemistry and structure of the deepest mantle to the geochemistry of mantle melts erupted at the surface**

Invited: Matt Jackson (UC Santa Barbara, USA)

14.10 **Paleozoic plate motion history and the longevity of deep mantle heterogeneities**

Abigail Bull (University of Oslo, Norway)

14.30 **Helium isotopic composition of the earliest picrites erupted by the Ethiopia plume**

Nick Rogers (Open University, UK)

14.50 **Isotope signatures from a melting mantle**

Huw Davies (Cardiff University, UK)

15.10 **Tea, coffee, refreshments & posters (Lower Library)**

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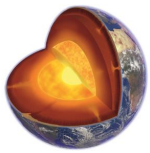

Session 8: MANTLE DYNAMICS

(Chair: Dr Saskia Goes. *Sponsor: Geological Society of London*)

15.40 **Mantle mixing: processes and modelling**

Invited: Peter Van Keken (University of Michigan, USA)

16.10 **The potential for palaeo-geomagnetism to help constrain lower mantle dynamics**

Andrew Biggin (University of Liverpool, UK)

16.30 **Quantifying lithological variability in the mantle**

Oliver Shorttle (University of Cambridge, UK)

16.50 **Of mantle plumes and secondary scale convection: Insights from whole mantle SEM-based seismic waveform tomography**

Barbara Romanowicz (Institut de Physique du Globe, Paris, France)

17.10 **Discussion**

17.25 **Closing comments**

17.35 **Close**