The Geological Society

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Co-evolution of Life & the Planet:

Future perspectives in Earth System Science

4-6 November 2014

Programme

Tuesday 4 November 2014	
	ICE-BREAKER EVENING – University College London
17.00	**KEYNOTE: Oxidation of the biosphere: The best laid scheme of life and planet** Lee Kump, Penn State University
18.30	**Drinks reception**
Wednesday 5 November 2014 – Geological Society	
9.00	**Registration, tea & coffee**
9.30	**KEYNOTE: Big History** Sir Crispin Tickell
Precambrian origins of the modern Earth System	
9.50	**Evidence for a prebiotic origin of cellular metabolism through chemical constraints of the Archean ocean** Markus Ralser, University of Cambridge
10.10	**Redox Regime Shifts in Model and Experimental Nutrient-Cycling Microbial Ecosystems: Consequences for Life-Environment Co-Evolution** Timothy Bush & Andrew Free, University of Edinburgh
10.30	**Clarifying the Haze: Biological Control as an Atmospheric Primer to the GOE?** Garth Izon, University of St Andrews
10.50	**Tea, coffee and posters**
11.10	**KEYNOTE: An orderly escape from Snowball Earth: evidence from a tropical continent** Ian Fairchild, University of Birmingham
11.40	**Weathering regimes on the land surface and the seafloor: Carbon sequestration, nutrient delivery and planetary oxygenation** Benjamin Mills, University of Exeter
12.00	**Ocean detoxification and the diversification of eukaryotic life in the early Neoproterozoic** Romain Guilbaud, University of Leeds
12.20	**Dynamic redox conditions control late Ediacaran ecosystems** Rachel Wood, University of Edinburgh
12.40	**A multi-proxy reconstruction of oxygen distribution during the emergence of biomineralisation** Rosalie Tostevin, University College London

13.00	**Lunch and posters**
Key events in the evolution of marine ecosystems	
14.00	**KEYNOTE: Beyond Biotic Patterns: Can We Understand the Underlying Controls** Peter Harries, University of South Florida
14.30	**Life on Earth exists by Geological Consent–subject to change without notice: A palaeobiogeographic investigation of the Boreal Triassic ammonoid faunal recovery** Alistair McGowan, University of Glasgow
14.50	**Functional Diversity across the Permian/Triassic boundary** William Foster, Plymouth University
15.10	**Faunal changes, global warming and anoxia in the early Toarcian (Early Jurassic)** Silvia Danise, Plymouth University
15.30	**Tea, coffee and posters**
15.50	**The Early Toarcian (Early Jurassic) extinction event and recovery as recorded in the Cleveland Basin, UK** Crispin Little, University of Leeds
16.10	**Carbon isotopes in otoliths: a new palaeoecological proxy?** Diana Shores
16.30	**Comparative palaeoecology of the trace fossil and body fossil records through the early Mesozoic** Richard Twitchett, Natural History Museum
16.50	**Discussion**
17.10	**NERC strategic research funding: Q&A** Chris Franklin, NERC
17.30 – 19.30	**Drinks reception**
Thursday 6 November 2014 – Geological Society	
8.30	**Registration, tea & coffee**
Geological constraints on evolution in the polar regions	
9.00	**KEYNOTE: Cretaceous oxygen isotope paleotemperatures from southern high latitudes** Brian Huber, Smithsonian Institution
9.30	**Life in Antarctica during the Paleogene** Jane Francis, British Antarctic Survey
9.50	**Climatic evolution of Antarctica through the latest Cretaceous to early Paleogene** David Kemp, Open University
10.10	**Survival at the Antarctic margin through a global catastrophe: palynological evidence for latest Cretaceous to Paleocene climatic and oceanic change** Vanessa Bowman, British Antarctic Survey
10.30	**Tea, coffee and posters**
11.00	**Extinction and recovery at the K-PG Boundary in Antarctica** Rowan Whittle, British Antarctic Survey
11.20	**Vegetation-climate-paleogeography interactions in the Cretaceous and Paleogene: implications for climate sensitivity** Dan Lunt, University of Bristol
11.40	**Role of the polar regions in the origin and maintenance of global biodiversity patterns** Alistair Crame, British Antarctic Survey

12.00	**Discussion**
12.20	**Lunch and posters**
Descent into the Icehouse during the Cenozoic Era	
13.20	**KEYNOTE: What does the 'CCD' tell us about the evolving global carbon cycling during the Descent into the Icehouse** Andy Ridgwell, University of Bristol
13.50	**The Descent into the Icehouse** Gavin Foster, The National Oceanography Centre Southampton
14.10	**The evolution of atmospheric CO_2 during the early Cenozoic** Eleni Anagnostou, The National Oceanography Centre Southampton
14.30	**Testing the metabolic hypothesis: temperature-dependent carbon cycling in the Eocene oceans** Paul Pearson, Cardiff University
14.50	**Patterns and drivers of cooling during the descent towards the icehouse** Gordon Inglis, University of Bristol
15.10	**Tea, coffee and posters**
15.30	**The impact of Cenozoic cooling on the diversity of planktonic foraminifera** Isabel Fenton, Natural History Museum
15.50	**Pliocene-Pleistocene evolution in sea surface and intermediate water temperatures: perspectives from the southern hemisphere** Erin McClymont, Durham University
16.10	**The origin of arthropod zooplankton** Vincent Perrier, University of Leicester
16.30	**Discussion**
16.50	**Closing remarks** Tim Lenton, University of Exeter
17.10	**Close of conference**

Poster Programme

Phosphatization in the Ediacaran: a taphonomic model for the Biskopås Formation of southern Norway Peter Adamson, University of Cambridge
Stabilization of the coupled oxygen and phosphorus cycles by the evolution of bioturbation Richard Boyle, University of Southern Denmark
Disentangling synergistic climate drivers on the extinction of the planktonic foraminifer Globoconella puncticulata Anieke Brombacher, National Oceanography Centre Southampton
Controlled regime shifts in sulphur-cycling microcosms Timothy Bush, University of Edinburgh
Assessing the impact of diagenesis on the $\delta^{11}B$, $\delta^{18}O$, $\delta^{13}C$ and trace element geochemistry of fossil planktonic foraminiferal calcite Kirsty Edgar, University of Bristol
Structural and Functional Unpredictability in the Microbial Communities of a Nutrient-Cycling Laboratory Model Ecosystem Andrew Free, University of Edinburgh
Records of Antarctic seasonal variation preserved in bivalve shells across the Cretaceous/Paleogene mass extinction Joanna Hall, University of Leeds
Early Cambrian seawater sulphate isotope evolution

Tian-Chen He, University College London
Redox and nutrient cycling in a late Mesoproterozoic sea Kathryn Husband, University of Leeds
The Maastrichtian–Eocene of Seymour Island, Antarctica: setting the stratigraphic and palaeoenvironmental scene Jon Ineson, Geological Survey of Denmark and Greenland
Wave-dominated, tidally-influenced deltaic sediments of the Sobral Formation (Lower Paleocene), Seymour Island, Antarctica Jon Ineson, Geological Survey of Denmark and Greenland
Biological innovation in the Ediacaran of Charnwood Forest: strategies against sediment occlusion Charlotte Kenchington, University of Cambridge
Modelling vegetation–climate interactions in past greenhouse climates Claire Loptson, University of Bristol
A chance to move from anecdotes to data: A taphonomic investigation of a specimen of *Svalbardiceras spitzbergenesis* (Frebold) from Svalbard Alistair J. McGowan, University of Glasgow
Investigating the carbon cycle perturbation of the Eocene-Oligocene Transition using biogeochemical modelling and analysis David I. Armstrong McKay, National Oceanography Centre Southampton
Nitrogen cycling in Neoarchaean ocean margins Colin Mettam, University of St Andrews
Palaeoclimatic and palaeoenvironmental changes through the latest Cretaceous to early Paleogene: Geochemical reconstructions from Seymour Island, Antarctica Charlotte O'Brien, University of Oxford
Palaeoecology of calcified metazoans from the Nama Group, Namibia Amelia Penny, University of Edinburgh
Benthic ecosystem dynamics following the Late Triassic mass extinction event: Palaeoecology of the Blue Lias formation, Lyme Regis, UK Autumn Pugh, University of Leeds
A large-amplitude Tonian-age negative carbon-isotope excursion from the Dalian area, North China Steven Robinson, University College London
Let me look into your otolith! Diana Shores
Redox cycling of phosphorus in the ~1.8 Ga Animikie Basin Jennifer Thompson, University of Leeds
Paleocene forests and climates of Antarctica: signals from fossil wood Laura Tilley, University of Leeds
How severe was ocean acidification at the K/Pg? Toby Tyrrell, National Oceanography Centre Southampton
Exciting Antarctic Science - engaging school children, the general public and stakeholders with the PALEOPOLAR project Rowan Whittle, British Antarctic Survey
Life and death at high latitudes: a reassessment of the Cretaceous/Paleogene (K/PG) mass extinction event in Antarctica James D. Witts, University of Leeds
Mineralogical controls on nutrient cycling in sulfidic environments Yijun Xiong, University of Leeds
Constructing a Neoproterozoic Seawater Strontium Isotope Curve Ying Zhou, University College London