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# **Fermor Meeting 2012**

## **The Neoproterozoic Era: Evolution, Glaciation and Oxygenation**

**19<sup>th</sup> – 21<sup>st</sup> September 2012**

This meeting is supported by NERC's Earth and Life Programme and ESI

### **Programme**

<b>Wednesday 19th September 2012</b>	
08.30	<b>Registration &amp; tea/coffee (Main foyer and Lower Library)</b>
09.25	<b>Welcome from the Convenors</b> Ian Fairchild, Dan Condon, Tim Lenton & Graham Shields-Zhou (Janet Watson Lecture Theatre)
	<b>Session 1: Chair: Ian Fairchild</b>
09.30	<b>KEYNOTE: (theme 1): Paleogeography, carbon and strontium isotopes, and the regolith hypothesis for the Tonian-Cryogenian transition</b> Adam Maloof (Princeton)
10.00	<b>Sequencing Neoproterozoic events and palaeogeography</b> Ian Dalziel (with Jenny Tait) (University of Texas at Austin & University of Edinburgh)
10.15	<b>Calibrating the early Neoproterozoic</b> Galen Halverson (McGill University)
10.30	<b>New geochemical perspectives on oxygenation of the late Proterozoic ocean</b> Tim Lyons (University of California)
10.45	<b>Discussion</b>
11.00	<b>Refreshment Break</b>
<b>Session 2: Chair: Graham Shields-Zhou</b>	
11.30	<b>KEYNOTE: (theme 2): The proxy record of late Neoproterozoic ocean chemistry and its relationship to marine and atmospheric oxygenation</b> Don Canfield (University of Southern Denmark)
12.00	<b>Building an integrated picture of Ediacaran ocean chemistry</b> Dave Johnston (Harvard University)
12.15	<b>Calcium and magnesium isotopes and Earth system response in the aftermath of Cryogenian glaciations</b> Simone Kasemann (University of Bremen)

12.30	Recording the expansion of O <sub>2</sub> -rich animal habitats in Neoproterozoic-Cambrian oceans - a new model perspective Tais Dahl (University of Southern Denmark)
12.45	<b>Discussion</b>
13.00	<b>Lunch (Lower Library)</b>
14.00	<b>Posters (First authors with family name beginning A-K)</b> (Lower Library and Arthur Holmes Room)
16.00	<b>Refreshment Break</b>
<b>Session 3: Chair: Andy Knoll</b>	
16.30	<b>KEYNOTE: (theme 3): When life got big: Ediacaran glaciation, oxidation, and the rise of complexity</b> Guy Narbonne (Queen's University, Ontario)
17.00	<b>Controls on the evolution of ocean redox chemistry in the early Neoproterozoic</b> Simon Poulton (Newcastle University)
17.15	<b>Paired carbon isotopes in the Ediacaran Araras platform</b> Magali Ader (Université Paris 7)
17.30	<b>Supply and demand: was oxygen a limiting factor in early animal evolution?</b> Nick Butterfield (University of Cambridge)
17.45	<b>Discussion</b>
18.00	<b>Wine reception</b>
19.00	<b>Conference KEYNOTE address followed by discussion: Climate science and geology: a tale of three histories</b> Paul Hoffman
20.30	<b>Dispersal (no meal arrangements have been made this evening)</b>
<b>Thursday 20th September 2012</b>	
08.30	<b>Registration &amp; tea/coffee (Main foyer and Lower Library)</b>
<b>Session 4: Chair: Martin Brasier</b>	
09.00	<b>KEYNOTE: (theme 3): A tale of three fossils</b> Andy Knoll (Harvard University)
09.30	<b>Mechanism for an abrupt permanent increase in Neoproterozoic O<sub>2</sub> levels</b> Daniel Rothman (Massachusetts Institute of Technology)
09.45	<b>Animal evolution in the early Ediacaran Period: insights from the Doushantuo Formation of south China</b> Shuhai Xiao (Virginia Polytechnic Institute and State University)
10.00	<b>Oxygen, ecology, and the Cambrian radiation of animals</b> Erik Sperling (Harvard University)
10.15	<b>Discussion</b>
10.30	<b>Refreshment Break</b>
<b>Session 5: Chair: Tim Lenton</b>	

11.00	<b>KEYNOTE (theme 4): (Title TBC)</b> Gilles Ramstein
11.30	<b>Snowballs and biota: a status report</b> Tony Prave (University of St Andrews)
11.45	<b>Towards a unified model for chemical evolution accompanying the enigmatic carbon-isotope fluctuations of the Neoproterozoic</b> Christian Bjerrum (University of Copenhagen)
12.00	<b>The fingerprint of extreme weathering</b> Andy Ridgwell (University of Bristol)
12.15	<b>Discussion</b>
12.30	<b>Lunch (Lower Library) (changeover of posters at 13.00)</b>
13.30	<b>Posters (First authors with family name beginning L-Z)</b> (Lower Library and Arthur Holmes room)
15.30	<b>Refreshment Break</b>
	<b>Session 6: Chair: Jonathan Craig</b>
16.00	<b>KEYNOTE (theme 2): The Marinoan <sup>17</sup>O-Depletion (MOSD) Event: singularity, duration, and implication for the synchronicity of the deglaciation</b> Huiming Bao (Louisiana State University)
16.30	<b>Aspects of Sturtian ice sheet dynamics from the southern hemisphere</b> Dan Le Heron (Royal Holloway University of London)
16.45	<b>A dynamic 'Snowball Earth': evidence for climatic fluctuations during low-latitude Neoproterozoic glaciation in Svalbard</b> Doug Benn (University of St Andrews)
17.00	<b>Icehouse to greenhouse transitions in earth history: physical and biological consequences in the aftermath of the "Snowball Earth" and collapse of the Larsen Ice Shelf</b> Gene Domack
17.15	<b>Discussion</b>
17.25	<b>Records of Cryogenian carbon cycling in the Tsagaan Oloom Formation, Mongolia</b> Tanja Bosak (Massachusetts Institute of Technology)
17.40	<b>A long-lived Australia-Laurentia connection in Rodinia and "A Tale of Two Australias" supported by new paleomagnetic data from the Neoproterozoic Bitter Springs Formation, central Australia.</b> Nicholas Swanson-Hysell (University of Minnesota)
17.55	<b>The Proterozoic petroleum system of the São Francisco Basin, Brazil</b> Maria Berton (Royal Holloway University of London)
18.10	<b>Discussion</b>
18.20	<b>Close of session (dinner has been arranged for the speakers only)</b>
	<b>Friday 21<sup>st</sup> September 2012</b>
8.30	<b>Registration &amp; tea/coffee (Main foyer and Lower Library)</b>

	<b>Session 7. Chair: Bernie Vining</b>
9.00	<b>KEYNOTE (theme 4): Deglaciation of a Neoproterozoic Snowball Earth: no longer a problem?</b> Ray Pierrehumbert
9.30	<b>Tracking reverse weathering and silicate diagenesis in ancient rocks</b> Nick Tosca (University of St Andrews)
9.45	<b>Neoproterozoic glaciations and post-glacial weathering regimes: Insights from Re-Os geochronology and Os isotope stratigraphy</b> Alan Rooney (Durham University)
10.00	<b>Weathering the Snowball</b> Francis MacDonald (Harvard University)
10.15	<b>Discussion</b>
10.30	<b>Refreshment Break</b>
	<b>Session 8: Chair: Galen Halverson</b>
11.00	<b>KEYNOTE (theme 3). Exploring a major role for sulphur symbioses in Ediacaran ecosystems</b> Martin Brasier (Oxford University)
11.30	<b>Diversity and ecological complexity in organic-walled microfossil assemblages from the mid-Neoproterozoic Chuar Group, Grand Canyon, Arizona</b> Susannah Porter (University of California at Santa Barbara)
11.45	<b>Chambered fossils from Cryogenian reefs: The oldest metazoans?</b> Malcolm Wallace (University of Melbourne)
12.00	<b>Exploring Ediacaran fossil preservation by differential taphonomy: who left the Ediacaran Taphonomic Window open?</b> Breandan MacGabhann (National University of Ireland)
12.15	<b>Title TBC</b> Phil Wilby (British Geological Survey)
12.30	<b>Discussion</b>
12.45	<b>Lunch (Lower Library)</b>
13.45	<b>Discussion fora: one per theme facilitated by Dan Condon (theme 1), Graham Shields-Zhou (theme 2), Andy Knoll (theme 3) and Tim Lenton (theme 4)</b>
15.30	<b>Refreshment break</b>
16.00	<b>Plenary summary discussion coordinated by Ian Fairchild: Janet Watson Lecture Room</b>
17.00	<b>Close of proceedings</b>
18.00	<b>Field trip departs from outside the Geological Society</b>