

Life and Planet 2024

Burlington House, London

July 2024

Day 1 - Wednesday, July 10th

9:30 – 9:50 Arrivals and discussion (catered)

9:50 – 10:00 Introductory remarks

Session 1 – Ediacaran-Cambrian marine ecosystems

10:00 – 10:15* **Highlight Talk:** Sea-level controls on Ediacaran-Cambrian animal radiations

Fred Bowyer, Rachel A. Wood, Mariana Yilales

10:15 – 10:30 **Microbial ecosystem during the late Ediacaran biotic crisis – insights from the Mohyliv-Podilsky Group, Moldova**

Heda Agić, Ion Francovschi, Andrey Bekker

10:30 – 10:45 **Earth's first mass extinction? Palaeo-environmental controls on the rise and fall of the Ediacaran biota**

Brennan O'Connell, William J. McMahon, Alexander G. Liu

10:45 – 11:00 **Giant treptichnids from the Ediacaran-Cambrian boundary of Namibia**

Simon Darroch, Alison Cribb, Kat Turk, Luis Buatois, Helke Mocke, and Lyle Nelson

11:00 – 11:30 **Break (not catered)**

Session 2 – Coevolution of life and terrestrial environments

11:30 – 11:45* **Highlight Talk:** How did the Permian-Triassic hot house climate shape the vegetation landscape and how did the land plants fight back?

Zhen Xu, Jianxin Yu, Jason Hilton, Barry H. Lomax, Paul B. Wignall, Benjamin Mills

11:45 – 12:00 **Tracing the coevolution of plants and the environment in Paleozoic Era ecosystems through plant paleoecophysiology**

Jonathan P. Wilson

12:00 – 12:15 **Exploring root evolution in an Earth System Model**

Khushboo Gurung, Ben Mills

12:15 – 12:30 **Extreme chemical weathering during the P-T transition linked to volcanism-driven terrestrial ecosystem collapse: Evidence from potassium isotopes**

Jun Mu, Graham A. Shields, Jianbo Chen, Shuzhong Shen, Weiqiang Li

12:30 – 14:00 **Lunch Break (not catered)**

Session 3 - Astrobiology and early life

14:00 – 14:15* **Highlight Talk:** Organic-carbon-induced reduction of phosphate and the availability of soluble and reactive phosphorus species for the origin and early evolution of life

Abu Saeed Baidya, Michelle Gehringer, Cristian Savaniu, Christoph Heubeck, Eva E. Stüeken

14:15 – 14:30 **Exploring the role of alternative phosphorus species in Precambrian biogeochemical cycles: A Genomics Approach**

Joanne Boden, Juntao Zhong, Rika Anderson, Eva Stueeken

14:30 – 14:45 **Characterization of Mineral Fabrics, Biofabrics, and Void space architecture in Incipient Microbialites can Explain Texture in Lithified Equivalents**

Victoria C. Cassidy, Victoria Petryshyn, Joan M. Bernhard, Florian Hofmann, Aaron Celestian, William M. Berelson, Emily H.G.

Cooperdock, David Bottjer, Frank A. Corsetti

14:45 – 15:00 **A novel metric for assessing planetary surface habitability**

Hannah Woodward, Andrew Rushby, Nathan Mayne

15:00 – 15:30 **Earth System Science Group Annual Business Meeting**

15:30 – 18:00 **Poster Session**

(catered)

Presenters by posters 16:30-17:30

Alcoholic drinks available from 17:00

15:45-16:30

ECR workshop

Content options voted on in registration form

Life and Planet meeting code of conduct

All attendees are expected to behave in a professional manner and to treat each other with respect. The Conference organizers reserve the right to remove any attendee who violates this code of conduct without a refund. If you believe another attendee is in violation of the code of conduct, please contact the organizing committee at info@lifeandplanet.com.

Intellectual Property Rights: All content presented at the Conference is the property of the respective presenters and may not be recorded, reproduced, or distributed without the express written consent of the presenter(s).

If you have any other queries throughout the conference, please contact info@lifeandplanet.com

* Highlight talks selected by the organizing committee



Day 2 - Thursday, July 11th

9:30 – 10:00 **Arrivals and discussion (catered)**

Session 4 - Coevolution of life and terrestrial environments (part 2)

- 10:00 – 10:15* **Highlight Talk: Resolving affinities of mysterious fossils using infrared spectroscopy and machine learning.**
Corentin C. Loron, Laura M. Cooper, Seán Jordan, Sean McMahon, Alexander J. Hetherington
- 10:15 – 10:30 **Tracking solar irradiance across the K/Pg boundary with fern spores using FTIR**
Hendrik Nowak, Barry H. Lomax, Wesley T. Fraser, Phillip E. Jardine, Luke Mander
- 10:30 – 10:45 **Erosion, Chemical Weathering and the Uplift of the New Guinea Highlands**
Peter D. Clift, Yifan Du, Katharina Pahnke, Mahyar Mohtadi, Philipp Böning
- 10:45 – 11:00 **A trade-off linking tectonics, climate, and diversification of Andean flora**
Esteban Acevedo-Trejos, Jean Braun, Benedikt Ritter, Tim Böhnert, Adeniyi Mosaku, and Hannah S. Davies
- 11:00 – 11:30 **Break (not catered)**

Session 5 - Phanerozoic hyperthermals and their impacts

- 11:30 – 11:45* **Highlight Talk: Oceanic Anoxic Event 2: Can CO₂ degassing from Large Igneous Provinces explain the biogeochemical perturbations?**
Chiara Krewer, Benjamin J. W. Mills, Simon W. Poulton
- 11:45 – 12:00 **A marine mechanism for the origin and recovery of eccentricity paced (hyper)thermals?**
Pam Vervoort, Sandra Kirtland Turner, Dominik Hulse, Sarah Greene, Andy Ridgwell
- 12:00 – 12:15 **Evidencing the unique challenges for marine life under rapid warming: changing extinction selectivity trends during hyperthermals**
Carl J. Reddin
- 12:15 – 12:30 **Scaling Biohorizons and scaling Geochronologies**
Shaun Lovejoy, Andrej Spiridonov
- 12:30 – 14:00 **Lunch Break (not catered)**

Session 6 – Modelling long-term relationships between climate, oceans and life

- 14:00 – 14:15* **Highlight Talk: Animals! Major and unpredictable perturbation of global carbon cycling by complex life**
Craig Walton, Oliver Shorttle
- 14:15 – 14:30 **SCION 2.0: A new biogeochemical model for investigating atmosphere and ocean oxygenation across the Phanerozoic**
Alexander J. Krause, Andrew S. Merdith, Khushboo Gurung, Zhen Xu, Stephen J. Hunter, and Benjamin J. W. Mills
- 14:30 – 14:45 **Modelling the life-environment interface in ancient shelf seas**
Sara Sjosten, Stuart Daines, Tim Lenton
- 14:45 – 15:00 **Dust variations over the past half billion years and their role in iron fertilization of the ancient oceans**
Yixuan Xie, Dan Lunt, Fanny Monteiro, Richard Stockey, Paul Valdes
- 15:00 – 15:15 **Marine biodiversity and the niche-environment interaction through deep time**
Alexis Balembois, Bertrand Lefebvre, Alexandre Pohl, Thomas Servais, Paul J. Valdes, Dan J. Lunt, Grégory Beaugrand
- 15:15 – 15:30 **Climate Modelling of the late Neoproterozoic Era**
Stephen J. Hunter, Benjamin J. W. Mills and Andrew S. Merdith

15:30 – 18:00 **Poster Session**
(catered)
Presenters by posters 16:30-17:30
Alcoholic drinks available from 17:00

15:45-16:30

'Funding the field' discussion
Discussion meeting on future funding routes

Life and Planet meeting code of conduct

All attendees are expected to behave in a professional manner and to treat each other with respect. The Conference organizers reserve the right to remove any attendee who violates this code of conduct without a refund. If you believe another attendee is in violation of the code of contact, please contact the organizing committee at info@lifeandplanet.com.

Intellectual Property Rights: All content presented at the Conference is the property of the respective presenters and may not be recorded, reproduced, or distributed without the express written consent of the presenter(s).

If you have any other queries throughout the conference, please contact info@lifeandplanet.com

* Highlight talks selected by the organizing committee



Day 3 - Friday, July 12th

9:30 – 10:00 **Arrivals and discussion (catered)**

Session 7 – Advances in geochemical proxies

- 10:00 – 10:15* **Highlight Talk: Records of Phosphorus and Sodium in biogenic calcite through 30 Myrs of the early Jurassic**
Ailsa Roper, Clemens Ullmann, Crispin T.S. Little, Simon Poulton, Paul Wignall, Tianchen He, Robert Newton
- 10:15 – 10:30 **Continental Weathering Dynamics and Early Biomineralization in the Late Ediacaran**
Eric Elias, Anette Meixner, Simone Kasemann, Gustavo M. Paula-Santos
- 10:30 – 10:45 **Rhenium isotopes as a tool for tracing oxidative weathering intensity in Earth's ancient past**
Alex Dickson, Robert Hilton, Julie Prytulak, Daniel Minisini, James S. Eldrett, Mathieu Dellinger, Wenhao Wang
- 10:45 – 11:00 **Mineralogical controls on climate and oxygenation**
Caroline L Peacock, Lisa Curti, Oliver W Moore, Peyman Babakhani, Ke-Qing Xiao, Mingyu Zhao, Clare Woulds, Ben J W Mills, Will B Homoky
- 11:00 – 11:30 **Break (not catered)**

Session 8 – Proterozoic life and early eukaryotes

- 11:30 – 11:45* **Highlight Talk: The Rise of Algae promoted eukaryotic predation in the Neoproterozoic benthos**
Daniel B. Mills, Aurèle Vuillemin, Kathi Muschler, Ömer Coskun, William D. Orsi
- 11:45 – 12:00 **Fossil taphonomy in a mid-Proterozoic siliciclastic succession**
Johnson, B. R., Tostevin, R., Lara, Y., Clayton, K. E., Robinson, S. A., Tosca, N. J., Javaux, E. J.
- 12:00 – 12:15 **Multicellular eukaryotes from the late Paleoproterozoic Chuanlinggou Formation in North China**
Lanyun Miao, Zongjun Yin, Andrew H. Knoll, Yuangao Qu, Maoyan Zhu
- 12:15 – 12:30 **Building the eukaryotic planet: a view from marginal marine settings**
Giovanni Mussini, Nicholas J. Butterfield
- 12:30 – 14:00 **Lunch Break (not catered)**

Session 9 – Big questions hour

- 14:00 – 15:00 **Big Questions discussion:** themes voted for on registration form
- 15:00 – 17:00 **Departures and discussion**
(not catered)

Life and Planet meeting code of conduct

All attendees are expected to behave in a professional manner and to treat each other with respect. The Conference organizers reserve the right to remove any attendee who violates this code of conduct without a refund. If you believe another attendee is in violation of the code of contact, please contact the organizing committee at info@lifeandplanet.com.

Intellectual Property Rights: All content presented at the Conference is the property of the respective presenters and may not be recorded, reproduced, or distributed without the express written consent of the presenter(s).

If you have any other queries throughout the conference, please contact info@lifeandplanet.com

* Highlight talks selected by the organizing committee

