



GeoFutures 2024: Planetary Geoscience

14 - 15 November 2024

HYBRID CONFERENCE PROGRAMME



The
Geological
Society

Welcome to GeoFutures 2024

'GeoFutures' is the forward-looking conference series from the Geological Society, aimed at bringing together diverse audiences to find solutions to the challenges of the 21st century.

In 2024, we are delighted to be partnering with our courtyard neighbours, the Royal Astronomical Society, to bring **GeoFutures 2024: Planetary Geoscience** to life.

We also want to thank our supporters, both the Geological Society of America and the Science & Technology Facilities Council (STFC), for their contributions towards this meeting.

Our programme committee had members from all three societies, crafting the varied programme of presentations you see here. We hope you enjoy it!



The
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THE GEOLOGICAL SOCIETY
OF AMERICA®



Royal
Astronomical
Society

Thursday 14th November

1000-1010	Welcome	Natasha Stephen (<i>Geological Society</i>)
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1010-1100	Keynote: Mercury, MESSENGER, & Bepi Colombo (title tbc)	Jack Wright <i>ESA & Open University</i>
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SESSION ONE – THE INTERSECTION OF MISSIONS & SAMPLE SCIENCE

1100-1115	3D and 2D clast analysis of Apollo 17 core sample 73002: insights into the Light Mantle dynamics and regolith reworking	Giulia Magnarini <i>Natural History Museum</i>
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1115-1130	Numerical Simulations for the Hydrothermal Evolution of Early Mars & Habitability Computations	Christou Evangelos <i>University of Glasgow</i>
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1130-1145	Investigating the Apollo 16 regolith in preparation for surface missions	Stephanie Halwa <i>University of Manchester</i>
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1145-1215	<i>Coffee Break</i>	
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SESSION TWO – FUNDING & INTERNATIONAL COLLABORATIONS

1215-1230	The UK Space Agency (title tbc)	Craig Brown <i>UK Space Agency</i>
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1230-1245	ESA's Vulcan Facility; Derisking Space Exploration using Planetary Surface Analogues - opportunities for collaboration	May Martin <i>European Space Agency</i>
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1245-1300	UKRI and the Science & Technology Facilities Council	Jenny Hiscock <i>Science & Technology Facilities Council</i>
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1300-1315	An introduction to planetary geoscience at NASA (title tbc)	Nick Lang <i>NASA</i>
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1315-1330	The Royal Astronomical Society (title tbc)	TBC <i>Royal Astronomical Society</i>
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1330-1430	<i>Lunch</i>	
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SESSION THREE – SAMPLE COLLECTION, CURATION & ANALYSIS		
1430-1445	Correlative analyses of Sulphur-bearing Serpentine in Carbonaceous Chondrites	Niamh Topping <i>University of Leicester</i>
1445-1500	The origin of Main Group pallasites explored using trace element analysis	Ana Pagu <i>University of Oxford & Geological Society</i>
1500-1515	Micrometeorites: New collections, their possibilities and problems	Penny Wozniakiewicz <i>University of Kent</i>
1515-1530	In-situ high-precision isotopic analysis of extra-terrestrial materials at nanoscale	Mahesh Anand <i>Open University</i>
1530-1545	Eucrite Metamorphism in Three Dimensions: A Compositional and Textural Investigation of Pyroxene Clouding with Scanning and Transmission Electron Microscopy	Jennifer T. Mitchell, <i>University of Minnesota</i>
1545-1615	<i>Coffee Break</i>	
SESSION FOUR – COMMUNITY UPDATES & DISCUSSION		
1615-1630	An Update on the UK Planetary Forum	TBC <i>UK Planetary Forum</i>
1630-1645	The UK Cosmochemistry Analysis Network	Katie Joy <i>UKCAN, University of Manchester</i>
1645-1700	The UK's National Meteorite Collection	Sara Russell <i>Natural History Museum</i>
1700-1715	The UK Fireball Alliance: building an all-sky UK meteor observatory	Ashley King <i>UK Fall, Natural History Museum</i>
1715-1745	Lightning session for poster presenters (3 mins each)	
1745-1930	<i>Poster Session & Drinks Reception</i>	

Friday 15th November 2024

0900-0930

Registration opens

0930-1020

Keynote: The EnVision Mission to Venus (title tbc)

Philippa Mason
Imperial College London

1020-1105

What does it take to get involved in space missions? A panel discussion with *those in the know...*

Various

1105-1135

Coffee break

SESSION FIVE – REMOTE SENSING & SOLAR SYSTEM EXPLORATION

1135-1150

Investigating the age and structure of the Ina IMP on the Moon

Lionel Wilson
Lancaster University

1150-1205

Determining the Principal Azimuths of Valles Marineris: A Comparative Analysis of Bezier Spline and GIS Techniques

Dan James
Citizen Scientist

1205-1220

Applications of digital outcrop modelling techniques to the Interpretation and analysis of small planetary bodies and moons

David Hodgetts
VR Geoscience Ltd.

1220-1235

The burial and exhumation of Mount Sharp, as recorded by the fracture sets at Maria Gordon Notch, Gale crater, Mars

Steven Banham
Imperial College London

1235-1350

Lunch

SESSION SIX – MISSION SCIENCE: MISSION HIGHLIGHTS, KEY UPDATES, NEW MISSION PROPOSALS

1350-1405

Water, water, everywhere: A mineralogical tale of the Bennu asteroid

Sara Russell
Natural History Museum

1405-1420

Enceladus: Sampling the Plume

Mark Burchell
University of Kent

1420-1435

Half a Glass of Sunshine

Luke Daly
University of Glasgow

SESSION SIX – MISSION SCIENCE: MISSION HIGHLIGHTS, KEY UPDATES, NEW MISSION PROPOSALS (CONTINUED)

1435-1450	Hidden in plain sight? On the challenges of detecting molecular markers for life in typical planetary samples.	Steve Larter <i>University of Calgary</i>
1450-1505	Planetary seismology: from Mars to the Moon and beyond	Tom Pike <i>Imperial College London</i>
1505-1520	Phobos' Origin: A Ground-Truthing Investigation through Laboratory Analysis of Meteorites.	Emelia Branagan-Harris <i>University of Oxford & NHM</i>
1520-1550	<i>Coffee Break</i>	
1550-1605	Nanogeoscience approaches for Mars Sample Return: maximising the outputs of analytical sample science using analogues of Jezero crater sedimentary rocks	Keyron Hickman-Lewis <i>Birkbeck, University of London</i>
1605-1620	Reconstructing the stratigraphic architecture at the apex of a Martian sedimentary fan system at Gnaraloo Bay, Jezero crater, Mars.	Robert Barnes <i>Imperial College London</i>
1620-1635	What Depositional Processes and Paleoenvironments Formed the Layered Sulphate Unit in Gale Crater, Mars?	Amelie Roberts <i>Imperial College London</i>
1635-1650	Geochemical and isotopic constraints on the petrogenesis of Plio-Quaternary alkaline rocks from the middle atlas (Morocco): Implications for mantle metasomatism	Said Haidatte <i>Université Chouaib Doukkali El Jadid, Morocco</i>
NEXT STEPS & PUBLICATIONS		
1650-1705	Opportunities for publishing your planetary geoscience research	Geological Society Publishing House
1705-1720	Looking Forward & Close	Natasha Stephen <i>The Geological Society</i>
1730	<i>End of conference</i>	

Poster Presenters

The Fate of Venusian Chlorine	Katherine Bormann <i>University of Oxford</i>
Development of a Correlative Workflow in Preparation for the Return of Mars Samples	Francesca Willcocks <i>University of Leicester</i>
Icebergs on Early Mars	Alberto Fairén <i>Astrobiology Center, Madrid, Spain</i>
Fluvial and Lacustrine Processes on Mars and their relevance to exploring Mars' Habitability.	Nisha Gor <i>Open University</i>
Carbon in CI Chondrites – Comparing Ivuna to Sample Return Missions	Pippa Lewis <i>University of Cambridge</i>
The Fluvial History of Noachis Terra	Adam Losekoot <i>Open University</i>
Advancing Karst Exploration with Remote Sensing and Artificial Intelligence: A Framework for Earth and Planetary Karst Systems	Luka Vucinic <i>Glasgow Caledonian University</i>