



# GeoFutures 2024: Planetary Geoscience

14 - 15 November 2024

**HYBRID CONFERENCE PROGRAMME**



The  
Geological  
Society



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1 NOV

Proposals Open  
(Session, Field Trip,  
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Deadline for Proposals

1 MAY

Abstracts Open

3 JUNE

Registration Opens

5 AUGUST

Deadline for Abstracts

19-22 OCT

**CONNECTS 2025**  
San Antonio, TX

# 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!



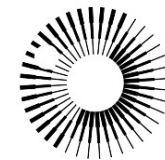
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## Thursday 14<sup>th</sup> November

1000-1010	Welcome	Natasha Stephen ( <i>Geological Society</i> )
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1010-1100	<b>Keynote:</b> MESSENGER, BepiColombo, and beyond: what's next for Mercury?	Jack Wright <i>ESA &amp; 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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1145-1230	<i>Coffee Break</i>	
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### SESSION TWO – FUNDING & INTERNATIONAL COLLABORATIONS

1230-1245	ESA's Vulcan Facility; Derisking Space Exploration using Planetary Surface Analogues - opportunities for collaboration	Kamini Manick <i>European Space Agency</i>
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1245-1300	UKRI and the Science & Technology Facilities Council	Jenny Hiscock <i>Science &amp; 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 RAS: Supporting Planetary Science	Robert Massey <i>Royal Astronomical Society</i>
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1330-1430	<i>Lunch</i>	
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<b>SESSION THREE – SAMPLE COLLECTION, CURATION &amp; ANALYSIS</b>		
<b>1430-1445</b>	Correlative analyses of Sulphur-bearing Serpentine in Carbonaceous Chondrites	Niamh Topping <i>University of Leicester</i>
<b>1445-1500</b>	The origin of Main Group pallasites explored using trace element analysis	Ana Pagu <i>University of Oxford &amp; Geological Society</i>
<b>1500-1515</b>	Micrometeorites: New collections, their possibilities and problems	Penny Wozniakiewicz <i>University of Kent</i>
<b>1515-1530</b>	In-situ high-precision isotopic analysis of extra-terrestrial materials at nanoscale	Mahesh Anand <i>Open University</i>
<b>1530-1545</b>	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>
<b>1545-1615</b>	<i>Coffee Break</i>	
<b>SESSION FOUR – COMMUNITY UPDATES &amp; DISCUSSION</b>		
<b>1615-1630</b>	An Update on the UK Planetary Forum	Mark Nottingham <i>UK Planetary Forum</i>
<b>1630-1645</b>	The UK Cosmochemistry Analysis Network	Katie Joy <i>UKCAN, University of Manchester</i>
<b>1645-1700</b>	The UK's National Meteorite Collection	Sara Russell <i>Natural History Museum</i>
<b>1700-1715</b>	The UK Fireball Alliance: building an all-sky UK meteor observatory	Luke Daly <i>UK Fall, Natural History Museum</i>
<b>1715-1745</b>	Lightning session for poster presenters (3 mins each)	
<b>1745-1930</b>	<i>Poster Session &amp; Drinks Reception</i>	

## Friday 15<sup>th</sup> November 2024

0900-0930

*Registration opens*

0930-1020

**Keynote:** EnVision Venus: Understanding why our closest neighbour is so different

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

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

Steve Banham  
*Imperial College London*

1220-1350

*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)

<b>1435-1450</b>	Hidden in plain sight? On the challenges of detecting molecular markers for life in typical planetary samples.	Steve Larter <i>University of Calgary</i>
<b>1450-1505</b>	Planetary seismology: from Mars to the Moon and beyond	Tom Pike <i>Imperial College London</i>
<b>1505-1520</b>	Phobos' Origin: A Ground-Truthing Investigation through Laboratory Analysis of Meteorites.	Emelia Branagan-Harris <i>University of Oxford &amp; NHM</i>
<b>1520-1550</b>	<i>Coffee Break</i>	
<b>1550-1605</b>	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>
<b>1605-1620</b>	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>
<b>1620-1635</b>	What Depositional Processes and Paleoenvironments Formed the Layered Sulphate Unit in Gale Crater, Mars?	Amelie Roberts <i>Imperial College London</i>
<b>1635-1650</b>	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>
<b>NEXT STEPS &amp; PUBLICATIONS</b>		
<b>1650-1705</b>	Get involved: Planetary Science at the Geological Society & Opportunities for Publishing Your Research	Thomas Harvey, Marissa Lo, Ana Pagu, <i>The Geological Society</i>
<b>1705-1720</b>	Looking Forward & Close	Natasha Stephen <i>The Geological Society</i>
<b>1730</b>	<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>



## Meeting convenors:

Natasha Stephen & Thomas Harvey

with support from the Geological Society Conferences Team

## Scientific Programme Committee:

Sara Russell (RAS), Mahesh Anand (RAS), Sean Peters (GSA), Helen Brand (GSL), Thomas Harvey (GSL) & Natasha Stephen (GSL)

With thanks to our partners, the [Royal Astronomical Society \(RAS\)](#) and the [Geological Society of America \(GSA\)](#), and support from [UK Research & Innovation, Science & Technology Facilities Council \(UKRI-STFC\)](#).

# THANK YOU!

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