



The
Geological
Society

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Speaker:

Prof. Tom Pike
Imperial College
London

Date:

**Wednesday 11th
May 2016**

Details:

**Tea / coffee:
17:30**

Meeting

Commences:

18:00

Location:

Burlington House

Free to attend.

**Registration not
required.**

For further information
and registration, please
contact:

Event Convenor:
Richard Ghail

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Searching for Water on Mars and Europa

A joint evening meeting between the Engineering Group of the Geological Society (EGGS) and the Remote Sensing Group

Synopsis

NASA's response to the age-old question "Is there Life beyond Earth" has been the directive to "Follow the Water". In this talk I will describe how we have searched for signs of water, as a liquid, on the surface of Mars, and how we will be widening the search to look below the icy surface of Europa for signs of a hidden ocean. Remote sensing first motivated NASA's Phoenix lander to dig below the surface of the Martian arctic. What we dug up and examined with a microscope station on Phoenix would suggest an aqueous history rather different than many had speculated.

Remote imaging has also raised the intriguing possibility of an ocean below the surface of Jupiter's icy moon, Europa. The focus is now on getting a lander onto the surface both to look for any signs of habitability, and also to peer below the surface using seismic techniques. I will describe how we have developed a micromachined silicon seismometer, currently waiting for launch to Mars in 2018 that could sense the pulsing of a hidden ocean tens of kilometres below the surface.

Professor Tom Pike builds microinstruments for planetary exploration, previously at NASA's Jet Propulsion Laboratory and now in Electrical and Electronic Engineering at Imperial College London. He led development of the Microscope Station for NASA's Phoenix Lander, a microseismometer for the 2018 InSight mission and is currently working on dust characterisation for in-situ propulsion production on NASA's 2020 rover.



This 22 May 2015 view from NASA's Curiosity Mars rover shows "Maria's Pass" where a lower and older geological unit of mudstone (pale zone in the image centre) lies in contact with an overlying sandstone unit. *NASA/JPL-Caltech/MSSS*

