



Geological Society of London Public Lecture Series

Further Reading List for Public Lecture: How and why the Earth is different

Nick Rogers, President of the Geological Society

Wednesday 29th January 2019

- **The Geological Society's Public Lecture Programme for 2020 –**
<https://www.geolsoc.org.uk/gslpubliclectures20>
- **The Geological Society's Year of Life –**
<https://www.geolsoc.org.uk/life20>
- **Nick Rogers, President of the Geological Society's inaugural lecture from 2019: 'Quicquid subterra est: whatever is under the earth' –**
<https://youtu.be/jLp9zVfcaVU>
- **The Geological Society's Plate Tectonics Online Learning Module –**
<https://www.geolsoc.org.uk/Plate-Tectonics>
- **An Introduction to Our Dynamic Planet, edited by Nick Rogers –**
<https://www.cambridge.org/vi/academic/subjects/earth-and-environmental-science/solid-earth-geophysics/introduction-our-dynamic-planet?format=PB>
- **Definitions and facts about the inner planets –**
<https://www.space.com/17028-terrestrial-planets.html>
- **Article by Jon Tenant (2013), How do planets evolve? –**
https://www.nature.com/scitable/blog/earthbound/how_do_planets_evolve/
- **NASA Solar System Exploration, Earth –**
<https://solarsystem.nasa.gov/planets/earth/overview/>
- **What makes Earth special? –**
<https://www.space.com/5595-earth-special-compared-planets.html>

- **TED Talk: Where did Earth's water come from? –**

<https://youtu.be/RwtO04EXgUE>

- **TED-Ed Lessons: The mysterious origins of life on Earth –**

<https://ed.ted.com/lessons/the-mysterious-origins-of-life-on-earth-luka-seamus-wright#watch>

- **Deep water Cycle**

https://www.wikiwand.com/en/Deep_water_cycle

- **The Hunt for Earth's Deep Hidden Oceans (Quanta Magazine on-line) –**

<https://www.quantamagazine.org/the-hunt-for-earths-deep-hidden-oceans-20180711/>

<https://www.quantamagazine.org/plate-tectonics-may-be-essential-for-life-20180607/>

Research Papers and Reviews

Bolfan-Casanova, N. (2005). Water in the Earth's mantle. *Mineralogical Magazine*, 69(3), 229-257. doi:10.1180/0026461056930248

- Max W. Schmidt, Stefano Poli, (1998) Experimentally based water budgets for dehydrating slabs and consequences for arc magma generation. *Earth and Planetary Science Letters* 163, 361–379

[http://www.geo.mtu.edu/EHaz/ConvergentPlatesClass/peacock/Schmidt+Poli\(1998,EPSL\).pdf](http://www.geo.mtu.edu/EHaz/ConvergentPlatesClass/peacock/Schmidt+Poli(1998,EPSL).pdf)

Steven D. Jacobsen & Suzan Van Der Lee, *Earth's Deep Water Cycle*, Geophysical Monograph Series Volume 168, 2006, American Geophysical Union Print ISBN:9780875904337 Online ISBN:9781118666487 (DOI:10.1029/GM168)

Greg Hirth & David L. Kohlstedt (1996) *Earth and Planetary Science Letters*, 144, 93-108. Water in the oceanic upper mantle: implications for rheology, melt extraction and the evolution of the lithosphere.

[https://doi.org/10.1016/0012-821X\(96\)00154-9](https://doi.org/10.1016/0012-821X(96)00154-9)

- **Rare Diamond Confirms That Earth's Mantle Holds an Ocean's Worth of Water –**

<https://www.scientificamerican.com/article/rare-diamond-confirms-that-earths-mantle-holds-an-oceans-worth-of-water/>

- Pearson, D., Brenker, F., Nestola, F. et al. (2014) Hydrous mantle transition zone indicated by ringwoodite included within diamond. *Nature* 507, 221–224.

<https://doi-org.libezproxy.open.ac.uk/10.1038/nature13080>

O. Tschauner et al. (2018) Ice-VII inclusions in diamonds: Evidence for aqueous fluid in Earth's deep mantle. *Science* 359, pp. 1136-1139

S. H. A. van de Lagemaat Douwe et al. (2018) Southwest Pacific Absolute Plate Kinematic Reconstruction Reveals Major Cenozoic Tonga-Kermadec Slab Dragging. *Tectonics* 37:2647–2674 DOI: 10.1029/2017TC004901

- Tetsuya Komabayashi, Soichi Omori, (2006) Internally consistent thermodynamic data set for dense hydrous magnesium silicates up to 35GPa, 1600°C: Implications for water circulation in the Earth's deep mantle. *Physics of the Earth and Planetary Interiors*, 156, Issues 1–2, 89-107,

<https://doi.org/10.1016/j.pepi.2006.02.002>

- Tetsuya Komabayashi, Soichi Omori, (2006) Internally consistent thermodynamic data set for dense hydrous magnesium silicates up to 35GPa, 1600°C: Implications for water circulation in the Earth's deep mantle. *Physics of the Earth and Planetary Interiors*, 156, Issues 1–2, 89-107,
<https://doi.org/10.1016/j.pepi.2006.02.002>
- Marc M. Hirschmann, Cyril Aubaud, Anthony C. Withers, (2005). Storage capacity of H₂O in nominally anhydrous minerals in the upper mantle, *Earth and Planetary Science Letters*, 236, 167-181,
<https://doi.org/10.1016/j.epsl.2005.04.022>

Planetary Science

G. Neukum et al. (2004) Recent and episodic volcanic and glacial activity on Mars revealed by the High-Resolution Stereo Camera. *Nature* 432, 2004 pp 971-979

Sami Mikhail, M. J. Heap Hot climate inhibits volcanism on Venus: Constraints from rock deformation experiments and argon isotope geochemistry 2017 *Physics of The Earth and Planetary Interiors* DOI: 10.1016/j.pepi.2017.05.006

Davaille, A., Smrekar, S. & Tomlinson, S. Experimental and observational evidence for plume-induced subduction on Venus. *Nature Geosci* 10, 349–355 (2017) doi:10.1038/ngeo2928

Various NASA sites <https://science.nasa.gov/> for superb images

NASA Earth Observatory

https://earthobservatory.nasa.gov/features/BlueMarble/BlueMarble_2002.php

- Solar System –
<https://science.nasa.gov/solar-system>
- Venus
<https://solarsystem.nasa.gov/planets/venus/overview/>
- Mars
<https://solarsystem.nasa.gov/planets/mars/overview/>
- Mercury
<https://solarsystem.nasa.gov/planets/mercury/overview/>

The mysterious origins of life on Earth - Luka Seamus Wright

Billions of years ago, simple organic compounds assembled into more complex coalitions that could grow and reproduce. At the time, Earth had widespread volcanic activity and a hostile atmosphere that made it almost devoid of a suitable environment for living things. So where did life begin? Luka Wright searches for the cradle of life that gave ...

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