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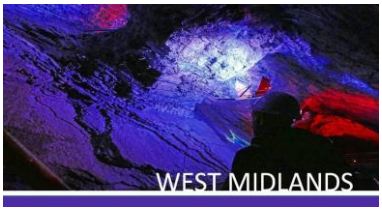

The Permian Vegetational Pompeii – Significance of a Tropical Forest Ecosystem Preserved by Volcanic Ash

Jason Hilton
(Professor of Palaeobotany and Palaeoenvironments, University of Birmingham)

9th May 2023 | Zoom Video Conference | 6:30pm start

Abstract:

Much of our current understanding of Carboniferous and Permian vegetation is based on fossils from Europe and North America that record diverse wetland peat-forming communities across lowland, palaeo-equatorial regions during the Carboniferous, but with these dying out and there generally being few plants preserved in Permian red-bed dominated sedimentary successions. This talk will highlight the situation in China where wetland plant communities persisted and diversified through the Permian. It will showcase a site with exceptional preservation, where a fossil forest is exquisitely preserved under a blanket of volcanic ash. Think of it as Pompeii without the Romans, but rather than stepping back in time a few thousand years in Mediterranean Italy, jump back 299 million years into the earliest Permian and a tropical forest ecosystem in what is now Inner Mongolia.

The visually stunning fossils are preserved complete, in their life positions, and with exceptional preservation that records their morphology and, in some cases, cellular anatomy. So far, more than 50,000 specimens have been identified and their distributions mapped from over 8,000 1x1 metre quadrats, recording the entire forest ecosystem on a scale dwarfing previous studies. Detailed and time-consuming work continues, documenting new plant species, genera, and families, and interpreting the evolutionary history, ecological significance, and geological relevance of each species. This remarkable fossil flora represents a pinnacle of understanding for the most ancient forest ecosystems and is revolutionising our understanding of plant evolution and floras in the earliest Permian. The presentation will talk about the plants, their importance, and about their palaeo-environmental implications, representing a window into a time of dramatic glacial-interglacial changes driven by volcanism.

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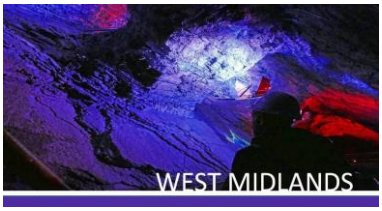

About the Speaker:

Jason is Professor of Palaeobotany and Palaeoenvironments at the University of Birmingham, where he teaches on a range of courses in Earth Sciences spanning introductory fieldwork, stratigraphic principles, Earth History, resource geology, and palaeobiology. He completed his BSc in Natural Environmental Sciences with specialism in Earth Sciences from Sheffield University, then undertook his PhD at Cardiff University in Palaeozoic palaeobotany. He then worked at the National Museum of Wales in Cardiff, the Chinese Academy of Sciences in Beijing, and the National Museums of Scotland in Edinburgh before joining the University of Birmingham in 2003.

His primary research focus is on fossil plants and plant evolution in deep (geological) time, and in this arena, he has worked on a broad range of topics including the origin and evolutionary relationships of plant groups, changes in diversity through evolutionary radiation and mass extinctions events, and floral responses to intervals of profound environmental and climatic change. His research tends to have a focus on the geological successions of China where he has amassed a large network of collaborative researchers in many different organisations, most recently investigating floral, environmental and climatic changes driven by Large Igneous Province volcanism and glacial-interglacial cycles.

Forthcoming Talks:

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Please note, the programme of monthly talks will take a break over the summer (July to September).

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