



## **Experiments with the living dead: Plants as monitors and recorders of Biosphere Geosphere interactions.**

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Understanding variations in the Earth's climate history will enhance our understanding of and capacity to predict future climate change. Importantly this information can then be used to reduce uncertainty around future climate change predictions. However to achieve this, it is necessary to develop well constrained and robustly tested palaeo-proxies.

Plants are innately coupled to the atmosphere requiring both sunlight and CO<sub>2</sub> to drive photosynthesis and carbon assimilation. When combined with their resilience and persistence, the study of plant responses to climate change in concert with the analysis of fossil plants offer the opportunity to monitor past atmospheric conditions and infer palaeoclimate change. In this presentation we highlight how this approach is leading to the development of mechanistic palaeoproxies tested on palaeobotanically relevant extant species showing that plant fossils can be used as both monitors and geochemical recorders of atmospheric changes.