

Meanwhile, on the continent... Clues of terrestrial turmoil at the end of the Paleozoic in marine records

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This contribution aims to offer a botanical perspective of the end-Permian ecologic crisis and its aftermath. In a series of examples, it is emphasized that current zoocentric concepts of Permian-Triassic mass extinction, survival and recovery may have to be refined if the terrestrial realm is included. Traces of terrestrial events preserved in marine sediments are particularly relevant in such analyses, because they allow for comparison with unequivocally coeval marine events and bio- or chemostratigraphic dating.

This study strongly relies on palynological data. In contrast to the discontinuous and qualitative plant-megafossil record, successive pollen and spore assemblages can provide the sample size and stratigraphic spacing needed to resolve the temporal pathway of vegetation responses to changing environmental conditions. Moreover, it provides a continual and regional, rather than the highly local T_0 signal of terrestrial macrofossil records.

Besides plant microfossils reflecting vegetational turnover, marine palynological sediments may also contain chemical proxies for soil acidification and erosion, while compound-specific stable carbon isotopes in preserved landplant-derived organic molecules may help answer specific carbon cycle questions. Here I hope to show that fossil palynomorphs can additionally be employed to identify and estimate levels of a particular type of biologic stress — increasingly implicated to play a role in the Permo-Triassic terrestrial biotic crisis: augmented UV-B fluxes.