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Rapid and synchronous collapse of marine and terrestrial ecosystems during the end-Permian biotic crisis

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Abstract

A newly studied Permian-Triassic (P-Tr) boundary section in Jameson Land, East Greenland, contains an abundant and well-preserved marine fauna as well as terrestrial palynomorphs. For the first time it is possible to compare the biotic crises of the marine and terrestrial realms using the same samples from the same section. The sediments record a negative excursion in $\delta^{13}C_{carb}$ values of 8‰–9‰, and in $\delta^{13}C_{org}$ values of 10‰–11‰. The presence of the conodont *Hindeodus parvus*, combined with the $\delta^{13}C_{carb}$ record, enables correlation with the proposed global stratotype section at Meishan. This shows that the Greenland section is the most expanded P-Tr section known. Collapse of the marine and terrestrial ecosystems took between 10 and 60 k.y. It took a further few hundred thousand years for the final disappearance of Permian floral elements. Collapse of the terrestrial and marine ecosystems began at the same stratigraphic level and preceded the sharp negative excursion in the $\delta^{13}C$ record.

http://geology.gsapubs.org/content/29/4/351.abstract