

## **EVALUATING THE SOURCE OF THE MERCURY SPIKE AT THE P-T BOUNDARY**

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The geologic record shows that 252 million years ago at the end of the Permian both marine and terrestrial ecosystems were severely disrupted, with the extinction of approx. 90% of marine species and 70% of terrestrial vertebrates. This was the most severe known extinction in Earth's history and was likely triggered by the eruption of the coeval Siberian Traps large igneous province. The release of volcanic gases from the Siberian Traps would have caused a cascade of damaging environmental changes. Mercury concentrations have been used to trace the volcanic activity in Permian-Triassic boundary (PTB) marine successions, and show a marked increase at the marine extinction interval. Here we present new TOC, mercury, and organic carbon-isotope data from terrestrial sections in South China. Negative carbon-isotope excursions (CIE) are recorded in the studied sections, and are synchronous with the crisis of terrestrial fauna and flora. Hg concentrations and Hg/TOC show peaks that correlate with the negative CIE and the biological turnover, similar to that seen in the marine records. With biogeochemical modelling we here evaluate a range of scenarios and we disentangle the possible sources of mercury to the freshwater and marine environments at the end-Permian mass extinction level. We constrain the links between the Siberian Traps eruption, loss of the flora and fauna, and the observed geochemical changes.