

The pre-KPB interval: sedimentary record of a major Deccan Traps pulse?

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Abstract: The KPB crisis is one of the major biological crises that affected the Earth at Phanerozoic times. There is still an acrimonious debate on the nature and origin of this mass extinction: proponents of the idea that large bolide impacts caused most of the Phanerozoic mass extinctions are opposed to those who favoured a terrestrial origin linked to continental flood basalt eruptions of the Deccan Traps. The major limitations reside in the difficulty to date with precision the stratigraphic position of Deccan traps pulses since direct markers are still missing. Recently, we investigated two KP sections, namely the Bidart section in France and the Gubbio section in Italy, and discovered a low magnetic susceptibility interval, some centimetres below the KPB (i.e. ~ 15 kyr younger), containing an enigmatic Cl-rich

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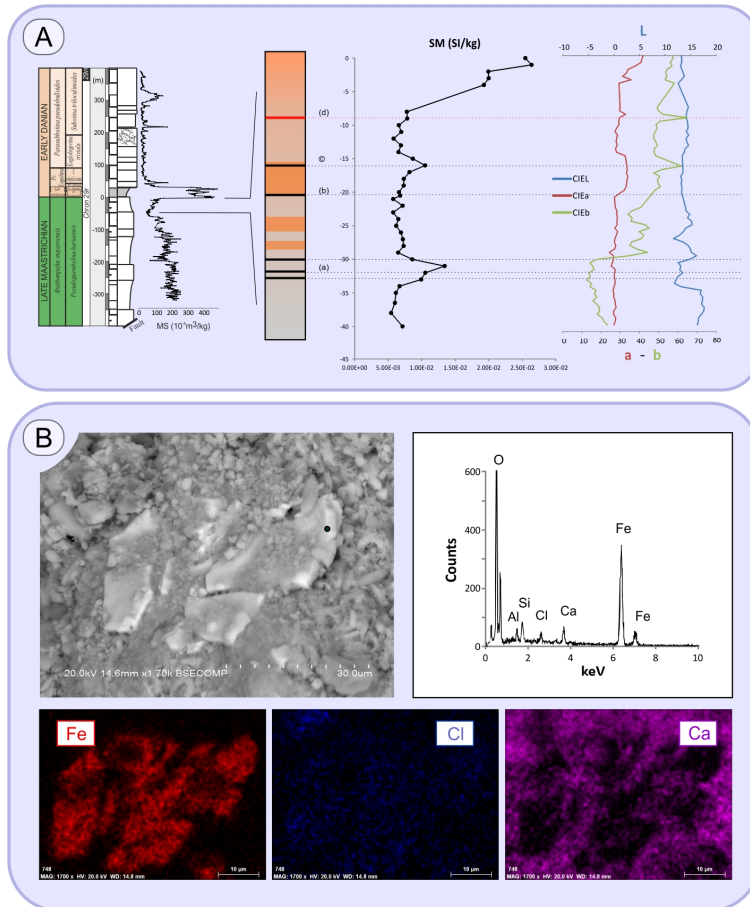
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iron oxide. By conjecture, we hypothesized an indirect link with the Deccan Traps volcanism due to reaction of Cl-rich aerosol within the newly formed atmospheric plume of the Deccan floods and deposition by winds. Here, we present new and high resolution magnetic and mineralogical data of the so-called "pre-KPB interval" of several KPB sections worldwide. Results confirm the presence of Cl-rich iron oxides and suggest that it may correspond to akaganeite. The relation of the presence of akaganeite in these marine sediments and the Deccan Traps volcanism is then discussed.

Key words: KTB crisis, volcanism, Deccan Traps, environmental magnetism, akaganeite



A) Magnetic susceptibility (MS) and color-reflectance data of the pre-KPB interval in Bidart, France, showing the low MS interval carried by akaganeite and mineralogical evolution; **B)** Scanning Electron Microscopy Photographs and Energy Dispersive Spectra of the akaganeite.

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