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A new chronology for the end-Triassic mass extinction

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The link between the end-Triassic mass extinction (∼200 Ma), one of the big five, and the emplacement of the Central Atlantic Magmatic Province (CAMP), one of the biggest flood basalt provinces, has been controversial. Here we show with a multi-disciplinary approach that the onset of volcanism in Morocco is synchronous with the extinction events documented in the terrestrial Newark basin (US) and in the marine realm (UK). Roughly 20 kyr later the main pulse of initial CAMP volcanism is synchronously recorded throughout the rest of the northern CAMP province. This event also seems to be short-lived (<100 kyr), probably occurring in distinct instantaneous pulses.

Additional cyclostratigraphic control on the marine St. Audrie's Bay Tr-J boundary section (UK) indicates that both these two CAMP pulses occurred before the recently defined (first occurrence Jurassic ammonites) Triassic Jurassic boundary. This boundary, which can be considered as a first recovery event, occurs about 6 precession cycles (∼120 kyr) after the end-Triassic mass extinction level.