Chemo-biotratigraphic characterization of the Triassic/Jurassic boundary interval in the Western Southern Alps

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The latemost Triassic was marked by a major mass extinction event, following profound global environmental changes likely related to the activity of the Central Atlantic Magmatic Province (CAMP), including: i) rapid sea-level fluctuations, ii) perturbations of the global C cycle, iii) and the collapse of the carbonate biological factory. Several studies tempted to stratigraphically constrain this global event and reconstruct the causative dynamics behind this dramatic extinction. In this work, we investigated the freshly-caved Italcementi active Quarry section, outcropping on the Mt. Albenza (Lombardy Basin, Southern Alps, Italy), for organic and carbonate carbon isotopes and calcareous nannofossils, contributing to the stratigrafic and paleoceanographic characterization of the end-Triassic interval. The new isotopic data highlight the occurrence of three $\delta^{13}C$ anomalies, which have been demostrated to be of global significance and to correspond to: 1) the late Rhaetian "precursor Carbon Isotope Excursion (CIE)"; 2) the latemost Rhaetian "initial negative CIE"; 3) and the Early Jurassic "main CIE". These excursions likely correspond to different phases of the CAMP volcanism probably responsible for perturbations in the ocean-atmoshpere system. We identify changes in nannofossil abundance and composition in correspondence of these intervals. In particular, a turnover is detected in correspondence of the "initial negative CIE" with the first occurrence of Jurassic species coinciding with the end of the $\delta^{13}C$ anomaly thus being at a lower stratigraphic level than found in other localities worldwide. Further analyses are therefore required to cast light on this new evidence.