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ABSTRACT BOOK

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Correlation between extinction pattern and $\delta^{13}C$ fluctuations across the Triassic Jurassic boundary in shallow water settings: a proxy for the present day acidification processes

Todaro S.*[1], Rigo M.[2], Randazzo V.[1] & Di Stefano P.[1]

[1] Department of Earth and Marine Sciences, University of Palermo
[2] Department of Geosciences, University of Padova

* *Corresponding email:* simona.todaro@unipa.it

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With the aim to assess the possible influence of the $\delta^{13}C$ variations on the benthic communities across the Triassic Jurassic boundary we have carried out sedimentological, biostratigraphic and stable isotope studies on an about 220 m thick peritidal section cropping out in Northwestern Sicily (San Vito Lo Capo peninsula).

The subtidal facies of the lower and middle part of this succession show the common occurrence of large and thick megalodontids and a benthic foraminiferal assemblage with *Triasina hantkeni* and Aulotuortids that support a Rhaetian age. In the lower part of the succession, a sudden reduction of the size, shell thickness and abundance of the large megalodontids witnesses a first significant biotic perturbation. This "Lilliput effect" corresponds to a first severe negative shift of the carbon curve that match a perturbation recorded worldwide and known as "initial CIE". The "Lilliput effect" does not seems to have any influence on the microbenthic community (e.g. foraminifers and calcareous algae).

Upward, a second negative excursion spans a large stratigraphic interval and consists of at least 4 subtrends. This negative excursion is well comparable to the "main CIE" as defined worldwide in several sections. In our section, the lower part of the main CIE corresponds to the disappearance of the megalodontids, while the upper part of the main CIE records the LO of the microbenthic communities and, in particular, of the *Triasina hantkeni* assemblage.

Upward, concurrently to a gradual positive trend of the carbon curve (ca. +1‰) a gradual recovery of the benthic communities occurs, as witnessed by oligospecific assemblages of the problematic calcareous alga *Thaumatoporella parvovesiculifera* and, subsequently, by the appearance of benthic foraminifers such as *Siphovalvulina* sp.

A comparison between the $\delta^{13}C_{carb}$ curve from the studied section and several coeval C_{carb} and C_{org} curves from carbonate platform, ramp and deep basins successions, shows a similar isotopic trends, however with a diverse magnitude and response of the benthic communities. This confirms the influence of external forces such as CAMP volcanism on the carbon fluctuations that leaded to the end Triassic extinction (ETE). The effects of the T/J carbon fluctuations on the benthic communities could represent a proxy for the present day acidification processes that are affecting the carbonate calcifiers organisms.