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# ABSTRACT BOOK

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Il tempo del pianeta Terra  
e il tempo dell'uomo:  
Le geoscienze fra passato e futuro



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## The alkaline-carbonatitic lamprophyres of the Dolomitic Area: Late Triassic precursors of the Alpine Tethys opening

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The camptonitic dykes cropping out at Predazzo (Dolomitic Area, Southern Alps) are among the oldest examples of lamprophyric rocks in Italy. In this study, a detailed petrological, geochemical and geochronological characterization of these rocks was put forward to frame them inside the articulated geodynamic evolution of the Southern Alps domain during Triassic. Whole-rock major and trace element content of lamprophyres suggest that their magmatic system was dominated by fractional crystallization, even some complex textures of amphibole phenocrysts could have formed in response to small-scale mixing processes. Additionally, the occurrence of primary carbonate ocelli in the camptonitic rocks suggest that the alkaline and the carbonatitic melts co-existed. Trace element, Sr-Nd isotopes and <sup>40</sup>Ar/<sup>39</sup>Ar data show that Predazzo lamprophyres cannot be considered anymore as a late-stage pulse belonging to the orogenic-like Ladinian magmatic phase of the Southern Alps, but instead represent an isolated magmatic pulse generated, ~20 Ma later, by a garnet-amphibole-bearing mantle source interacting with an asthenospheric component. All these features, fostered by a comparison with the main Middle-Late Triassic magmatic occurrences of the Alps and Carpathians regions, suggest that Predazzo lamprophyres belong to the alkaline-carbonatitic magmatic event that intruded the mantle beneath the Southern Alps between 225 and 190 Ma (Stähle et al., 2001; Schaltegger et al., 2015; Galli et al., 2019). In the light of these new findings, Predazzo lamprophyric dykes can be interpreted as the geochemical/geochronological junction between the orogenic-like Ladinian magmatism and the rifting phase related to the opening of the Alpine Tethys.

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