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# ABSTRACT BOOK

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**CATANIA-2018**  
12-14 SETTEMBRE



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«Geosciences for the environment,  
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## The role of crustal assimilation in the genesis of the Middle Triassic Predazzo Intrusive Complex (Dolomites, Southern Alps)

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The Predazzo Intrusive Complex is a 4.5 km<sup>3</sup> multi-pulse ring-shaped pluton emplaced during the Middle Triassic magmatic event in the Southern Alps domain. It is almost completely preserved from the Alpine tectonics, and this feature, together with its compositional variability, made it an intriguing study case since the beginning of the 19<sup>th</sup> century. The complex is constituted by three magmatic pulses (Shoshonitic Silica Saturated, Shoshonitic Silica Undersaturated and Granitic Unit) emplaced in a short time span, and ranging in composition from gabbroic/pyroxenitic to syenitic/granitic. It intrudes the Permo/Triassic sedimentary sequences as well as the Permian ignimbrites of the Athesian Volcanic District. The relationships with the related volcanic sequences and the host rocks, strengthened by thermobarometric calculations, suggest a shallow depth of intrusion. Debated is instead the geochemical variability of its magmatic suites, as well as their orogenic signature. Whole rock Sr-Nd isotopes, corroborated by EC-AFC (Bohrson & Spera 2001) numerical simulations enabled us to discriminate between the mantle signature and the (possible) interaction of the Middle Triassic magmas with the crust, whose components are the Triassic carbonates, the Permian intrusives and rhyolitic ignimbrites, and the Kinzigite Fm. (Voshage et al. 1990; Sinigoi et al. 2016). Results showed that the Predazzo Intrusive Complex magmas plot in the enriched mantle source field, enhancing the presence of a subduction-signature component in the mantle beneath Southern Alps during Triassic. EC-AFC models indicated the presence of distinct geochemical signatures for the magmatic suites, as well as a slight degree (5-6%) of crustal assimilation by magmas, which mainly differentiated by means of fractional crystallization processes.

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