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## Corundum-rich dykes constraining Triassic alkaline magmatism in the Ivrea-Verbanò Zone (Southern Alps): a zircon approach

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Zircon is a common accessory mineral in evolved magmatic rocks and its investigation can provide unevaluable geochronological and geochemical information. The lower continental crust forming the Ivrea-Verbanò Zone (IVZ, Southern Alps) locally shows the discordant intrusion of swarms of felsic dykes, which petrology was poorly constrained. Corundum-rich (Crn up to 55 vol.%) felsic dykes were sampled in two different outcrops along the Sabbiola valley (central IVZ). Besides corundum, they consist mainly of sodic plagioclase (An=5-10 %), biotite-siderophyllite,  $\pm$ K-feldspar and  $\pm$ hercynite. These dykes intrude granulites and Permian mafic intrusives, showing either pegmatite-like or porphyroclastic textures and contain abundant zircon. Trace elements concentration, as well as the isotopic U-Pb and Lu-Hf compositions of zircons have been determined by LA-ICP-(MC)MS to unravel emplacement ages and nature of parental melts. U-Pb weighted average ages point to Norian emplacement (ca. 224 Ma). Zircons are characterized by very high concentrations in REE, Th, U, Nb and Ta. REE patterns show marked negative Eu anomaly. These data, in association with the enrichments of Na in plagioclases and of Fe in micas and oxides, suggest that the parent melts were extremely evolved differentiates. Porphyroclastic texture developed in the frame of magmatic processes due to volatiles overpressure. Strongly positive  $Hf_{(t)}$  values (+13 on average) suggest a derivation of the parental melts from depleted to mildly enriched mantle sources. This observation and the corundum saturation (evidence for low silica activity) point to limited crustal contamination, which was favored by the high eutectic temperature of the host rocks. It is proposed that studied dykes segregated from peraluminous melts produced by exsolution processes affecting volatile-rich differentiates during alkaline magmatism (Bonazzi et al., 2020).

Triassic magmatic activity is largely documented throughout the Southern Alps, being related to different tectono-magmatic cycles. Nevertheless, before this study, the evidence of Triassic magmatism in IVZ was restricted only in its northernmost tip (Finero area, e.g. Zanetti et al., 2013; Schaltegger et al., 2015). This work provides robust constraints about the transition of the

geochemical affinity of Southern Alps magmatism from orogenic-like to anorogenic during Norian, linked to a regional uprising of the asthenosphere and changes of tectonic regime.

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