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Permian post-collisional basic magmatism from Corsica

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Post-Variscan early Permian magmatism is widespread in Corsica with mafic dykes emplaced during the extensional tectonic phase which followed the Variscan orogeny. This study focuses on a mafic dyke swarm intruded in the region of Ajaccio (Corsica, France). New U-Pb zircon geochronological data show that these intrusions were emplaced at ca. 282 Ma. Most Ajaccio dykes have a calc-alkaline affinity, while a few dykes show tholeiitic affinity resembling N-MORB basalts. Calc-alkaline to tholeiitic dykes are characterized by enriched to depleted Sr-Nd-Pb isotopic compositions, respectively. We interpret these data as evidence that an enriched mantle source, which was likely formed during Variscan subduction, sourced the calc-alkaline suite, while a depleted mantle component dominates the source of the tholeiitic suite. Notably, coeval Permian mafic intrusive bodies from throughout Corsica and from the Southern, Central and Western Alps display similar ages and geochemical features to the Ajaccio dyke swarm. This indicates that a widespread Permian magmatic province developed in a post-orogenic extensional tectonic setting at the margin of the former Variscan belt