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Orogenic potassic mafic magmatism, a product of alkaline-peraluminous mixing ? Variscan 'calc-alkaline' rocks from the Central Iberian and Ossa Morena Zones, Central Spain.

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Orogenic magmatic rocks provide information about mantle and crust melt-generation and -interaction processes. In this context, minor potassic mafic stocks which are formed of enriched mantle and crustal components and are common as late-orogenic intrusions in granitic plutons give insight into the timing of new crust formation and crustal recycling.

Potassic mafic stocks are prevalent, albeit low volume, constituents of granite batholiths all through the European Variscan (350-280 Ma). In the Central Iberia Zone, Spanish Central System, crustal-melt, S-type, granitoid plutons are intruded by minor concomitant ultramafic-intermediate appinitic-vaugneritic stocks. Notwithstanding their whole-rock calc-alkaline composition, the stocks apparently did not have a subduction-related origin. Recent studies have attributed their genesis to mixing of alkaline mantle and peraluminous crustal melts. Their primary alkaline character, as indicated by amphibole and biotite mineral chemistry data, points, rather, towards an extension-related genesis. In the Ossa Morena Zone, south of the Central Iberian Zone, the igneous rocks also have a whole-rock calc-alkaline composition which has been considered to be the result of northward subduction of the South Portuguese Zone. Nevertheless, identification of a 'sill' of significant volume of mafic magma in the middle crust, the [U+02BB]IBERSEIS reflective body', in a seismic profile across the Ossa Morena and South Portuguese Zones has cast doubt upon the calc-alkaline magmatism-subduction model; leading, instead, to the magmatism being attributed to intra-orogenic extension related to a mantle plume active from 340 Ma to 330 Ma.

The aim here, then, is to reinvestigate the petrogenesis and age of the calc-alkaline rocks of the Ossa Morena Zone to determine their tectonomagmatic context be it subduction-, plume- or extension-related, and establish what they may reveal about mantle-crust interactions.

Focussing, initially, on the Valencia del Ventoso pluton, preliminary mineral chemistry, whole-rock and isotope data indicate that rather than a single-stage cogenetic calc-alkaline intrusion, the pluton is a multi-stage composite of compositionally diverse stocks. Including the metaluminous calc-alkaline Medina de las Torres gabbro and Cortijo del Pozuelo granite to the concentrically zone alkaline core though to calk-alkaline border of the main pluton. In addition, an associated older peraluminous La Jineta granite body and younger cross-cutting tholeiitic dykes crop out in the same region.

Here we present new U-Pb single zircon IBERSIMS SHRIMP data which indicate that the compositionally diverse main pluton and associated stocks are contemporaneous at 334 $\pm$ 2 Ma.

So, rather than reflecting reactivation of a zone of lithospheric weakness by successive magmatic events it appears that at Valencia del Ventoso diverse mantle and crustal sources were being tapped simultaneously. We suggest that this is linked to the generation of and thermal anomaly associated with the coeval [U+02BB]IBERSEIS reflective body'.

The question is, then, if other 'calc-alkaline' plutons have similar compositional, and so, possible tectono-magmatic complexity. To test this hypothesis studies are currently underway of the Ossa Morena Zone Burguillos del Cerro and Brovales plutons.