

Geochemistry of metagabbros: a tool for deciphering tectonic processes along an alleged subduction interface

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Gabbroic rocks may be found in ocean-derived units (as part of ophiolite complexes) as well as inside the continental crust (as layered complexes emplaced at different crustal levels). When both ocean- and continent-derived units are juxtaposed during or following subduction, the two types of gabbroic rocks may be found close to each other. Assessing the amount of mixing between the two types of material in the subduction zone is critically dependent on the recognition of the origin of the gabbros.

An example will be illustrated in the Western Alps, along the contact between the continental-derived Dent-Blanche and the ocean-derived Combin units. Detailed mapping associated with geochemical characterization of the magmatic protoliths allow us to accurately describe the geometry of this contact, exemplified as a serpentinite shear zone along a former subduction interface.

The main results of our study are (i) the identification of a new Permian gabbroic complex in the Dent Blanche unit [1], (ii) the lack of melange between continental- and ocean-derived material along the interface, and (iii) an orderly sequence of structures progressively building the contact, from the blueschist-greenschist transition at depth to the late pseudotachylites close to the surface.

[1] Manzotti *et al.* (2017) *J. Geol. Soc. London*, doi.org/10.1144/jgs2016-071