those ultramafic-bearing units were classically supposed to be of oceanic origin, representing the Jurassic Piemont Ocean.

Protolith age data comprise mostly Permian to Late Upper Carboniferous ages (310 to 265 Ma) for the orthogneiss (BERTRAND et al. 2005). This is also the radiometric age range for the Ivrea mafic body, a verticalized, Permian, lower crust wedge. The Gneiss du Charbonnel Formation, consisting of interlayered felsic levels of unknown origin in the VZSFO, nearby GP massif, also yielded zircons of Permian age, as is also the case for the Lanzo peridotites. Gabbros of the latter Lanzo zone yielded Jurassic ages (KACZMAREK et al. 2008), correlated to the radiolarite ages at the base of the calcschists, and representing the age of the oceanization (MOHN et al., 2010).

A suggested vision of the ICM would hence them to be an upside down Permian crust of S-Alpine origin representing a lateral equivalent to the Ivrea body. More speculatively, parts of the presently overlying eclogitized mafic units of the VZSFO might represent parts of their related upper mantle. Thin marble levels previously considered as Triassic deposits, between GP and VZSFO, might instead represent layered lower crust remnants.

Abundant zircon crystals found in the Al,Mg-rich whiteschist of western GP margin are presently being investigated, regarding their age(s) of crystallization as well as their mineral inclusions. Field data might also help better defining the relationships of the GP whiteschist with its host-rocks.

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Evolution and reactivation of basement highs at hyper-extended rifted margins: the example of the Briançonnais domain in the Alps and comparisons with modern analogues

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The development of new reflection and refraction seismic techniques enabled to image the crustal architecture of deep-water rifted margins. The new data show that in addition to the classical tilted blocks rifted margins are formed by a large variety of different types of crustal blocks/structures, including micro-continents, continental ribbons, H-blocks and extensional allochthons. This large variety of structures suggest a complex rheological, thermal, and subsidence history of rift systems that is recorded by the tectonic, magmatic and sedimentary processes occurring during rifting. Since rifted margins may eventually be reactivated and become part of an orogenic system, understanding their rift architecture may also be a key to understand the final structure of internal parts of collisional orogens. Distal parts of rifted margins are often at deep-water and sealed by thick post-rift sediments, which makes that these highs are difficult to drill. That's why we combine the study of seismic sections with that of field analogues exposed in the Briançonnais domain in the Alps. Mapping the pre-Alpine and Alpine structures of this domain and properly define their stratigraphic and tectonic evolutions provide important insights into the tectonic evolution of distal rifted margins during their formation and subsequent reactivation.

The Briançonnais domain forms the most distal part of the European margin. In contrast to the Adriatic margin that was the focus of many studies investigating the architecture and evolution of the Jurassic margin, much less is known about the structure and evolution of the conjugate Pre-Piemontais/Briançonnais domains. To better understand their evolution during rifting, we reviewed the existing structural, stratigraphic and age data of these domains from Liguria/Italy, across the French Alps to Grisons in Switzerland. We propose new constructed sections across the Briançonnais domain that forms the basis to discuss the rift-related tectono-stratigraphic and subsidence evolution of this domain. This study will enable to compare the along and across strike stratigraphic architecture of the Pre-Piemontais/Briançonnais domains and to compare them with those made at seismic sections imaging deep-water rifted margins (e.g. Campos (S-Atlantic), Newfoundland (N-Atlantic) and eastern Indian margin).

The first results show that the principal Alpine structures in the Briançonnais domain reactivated mainly pre-Alpine structures. The structural evolution and the change in vergence across the Briançonnais domain are likely controlled by the crustal architecture of the former rifted margin. The stratigraphic architecture and its relation to basement structures within the Pre-Piemontais/Briançonnais domains suggest the abrupt juxtaposition of crustal domains of different crustal thickness with strong lateral changes of the top basement architecture. These relations are very similar to that observed along present-day rifted margins. This complex, 3D architecture of the European margin may have played an important role for the distribution of post-rift sedimentary systems as well as for the reactivation of the European margin during the Alpine convergence.

Internal structure of cataclastic faults along the SEMP fault system (Eastern Alps, Austria)

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In this study three different sites along the ENE-trending, sinistral Salzach-Ennstal-Mariazell-Puchberg [SEMP] fault zone were investigated with respect to brittle fault zone evolution and fault re-activation. All sites crop out in Triassic carbonates (Ladinian Wetterstein limestone/ -dolomite). Simultaneously (re-) activated faults were investigated with focus on fault-slip data and structural inventory of each individual fault zone.

Configuration of (internal) structural elements, fault core thickness, strike direction and slip sense in addition to particle analysis of fault core cataclasites add up to three different fault types (Fault type I, II and III).

Fault type I is classified by a complex internal fault core structure with thicknesses up to several 10s of meters and generally evolve in a strike direction of maximum shear stress (τmax). Type II faults, characterized by cataclastic fault cores with thicknesses up to 1m, as well as type III faults (thin solitary cataclastic layers) evolve sub-parallel to the main fault direction and in orientation according to R, R' or X shear fractures with variable (σn / τ) ratio.