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REMNANTS OF A LATE JURASSIC DETACHMENT SHEAR ZONE IN THE MONVISO META-OPHIOLITE COMPLEX (WESTERN ALPS)

[BALESTRO, Gianni](#), Università di Torino, Dipartimento di Scienze della Terra, via Valperga Caluso 35, Torino, 10125, Italy, FESTA, Andrea, Università di Torino, Dipartimento Scienze della Terra, Via Valperga Caluso 35, Torino, 10125, Italy, DILEK, Yildirim, Department of Geology & Environmental Earth Science, Miami University, Culler Hall, Spring Street, Oxford, Ohio, OH 45056 and TARTAROTTI, Paola, Università di Milano, Dipartimento di Scienze della Terra, via Mangiagalli, 34, MILANO, 20133, Italy, gianni.balestro@unito.it

The Monviso meta-ophiolite Complex is a major eclogitized remnant of the Ligurian–Piedmont oceanic lithosphere stacked in the Western Alps, and, despite the overprint of subduction- and collisional-related metamorphism and tectonics, displays exceptional records of its Jurassic rift-drift history.

In the Monviso meta-ophiolite Complex, serpentized metaperidotite intruded by 163 ± 2 Ma metagabbros are exposed in the footwall of a major shear zone and are overlain by metabasalt and syn-extensional calcschist with ophiolite-derived detrital intercalations in the hanging wall. The shear zone consists of mylonitic serpentinite, sheared meta-ophicarbonates and talc-and-chlorite schist, representing a rock assemblage originally formed as a result of rock-fluid interactions between gabbros, serpentinite and seawater-derived hydrothermal fluids along an oceanic core complex–related detachment fault.

A Lower Cretaceous calcschist, marble, and quartz-schist metasedimentary assemblage unconformably overlies the footwall and hanging-wall units, representing a post-extensional sequence that does not display any evidence of deformation and metasomatic processes, as would be expected if shearing occurred during subduction or collisional Alpine-related stages.

The Monviso meta-ophiolite Complex represents an ancient oceanic core complex formed in an embryonic ocean (i.e., the Ligurian–Piedmont Ocean), and its heterogeneous lithostratigraphy and structural architecture may be a model for recognizing products of rift-drift processes in other (ultra)high-pressure belts worldwide.

Session No. 75

T217. Rift-Drift, Seafloor Spreading, and Subduction Zone Tectonics of Collisional Orogens:
Comparative Analysis of the Circum-Mediterranean and Appalachian-Caledonian Orogenic Belts

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