



## **Recognition of hyper-extended rifted margin remnants in the internal zone of the Alpine belt: A tribute to Marco Beltrando**

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Marco Beltrando was part of the young generation of Alpine geologists who challenged the interpretation of the Western Alps by combining a classical field approach and modern techniques (e.g.  $^{40}\text{Ar}/^{39}\text{Ar}$  and (U-Th)/He thermochronology). His work provides the foundation to re-interpret some of the classical sections through the Alpine belt and may impact the way of thinking about the nature and structure of internal parts of collisional orogens. This contribution will present the main outcomes of the work of Marco Beltrando and their implications for the understanding of Alpine type orogens.

Since his PhD, Marco Beltrando focused most of his work on the study of the internal parts of the Western Alps. He investigated in great details the complex, multiphase structural and metamorphic evolution of the Penninic units in the Western Alps. He concluded that these units went through several cycles of shortening and extension during the Alpine orogeny, with major implications for the Alps but also other orogenic belts. After his PhD, he focused his research on the pre-orogenic evolution of the Alpine belt. He first worked on the Petit St. Bernard area, where he identified relics of the former hyper-extended Tethyan rifted margin. Thanks to his work and his amazing knowledge of the Western Alps, he understood the potential importance of rift-inheritance in controlling the architecture and evolution of the Alpine belt. In parallel to the study of the orogenic evolution, he developed a new methodology to recognize rift-related lithostratigraphic units in highly deformed and metamorphosed parts of the Alps. His innovative work allowed a re-assessment of several areas in the Western Alps and demonstrates the importance of rift inheritance. Recently, he started a new research project on the evolution of the Southern Alps highlighting the importance of heating and cooling cycles resulting from complex successions of rifting events.

In spite of his young age, Marco Beltrando was at the forefront of new techniques, ideas and concepts that ultimately will improve our understanding of mountain belts and rift systems. Eventually more than anything, his motivation and enthusiasm were a constant source of inspiration.