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Ivrea mantle wedge and arc of the Western Alps (I): Geophysical evidence for the deep structure

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The construction of five crustal-scale profiles across the Western Alps and the Ivrea mantle wedge integrates up-to-date geological and geophysical information and reveals important along strike changes in the overall structure of the crust of the Western Alpine arc (Schmid et al. 2017). The 3D crustal model of the Western Alps represented by these cross sections is based on recent P-velocity local earthquake tomography that compliments the previously existing wealth of geophysical information about lithosphere structure in the region. As part of Adria mantle lithosphere exhibiting strong upward bending toward the plate boundary along the inner arc of the Western Alps, the well-known Ivrea body plays a crucial role in our tectonic model. Until recently, however, the detailed 3D geometry of this key structure was only poorly constrained. In this study we present a review of the many seismic data in the region and we document the construction of our 3D lithosphere model by principles of multidisciplinary seismic tomography.

Reference:
Stefan M. Schmid, Edi Kissling, Douwe J.J. van Hinsbergen, Giancarlo Molli (2017). Ivrea mantle wedge and arc of the Western Alps (2): Kinematic evolution of the Alps-Apennines orogenic system. Abstract Volume EGU 2017.