



Alpine Post-Collisional Orogeny: topics of debate and possible targets for AlpArray research

Edi Kissling

ETH Zurich, Earth Sciences, Zuerich, Switzerland (kiss@tomo.ig.erdw.ethz.ch)

In all aspects, the Alps are by far the best documented orogen. Within their only 1000km lengths from Nice to Vienna, the Alps exhibit an extraordinary variation in structure along strike and from surface to great depth. The modern well-accepted mountain building concept calls for a material flux carefully balanced by mantle flow, plate convergence, subduction, crustal delamination, surface topography, uplift and erosion. The Alpine data set provides a basis to relate subduction processes with Penninic nappes evolution and overthrusting of Austroalpine lid, collision and oceanic slab break-off with build-up of topography, and post-collisional slab rollback and isostatic rebound due to erosional unloading to exhumation of deep European basement structures such as Tauern and Aar massiv. Temporal and spatial variations and relative importance of these processes and their relation to the overall convergence between the Adriatic/Africa and European continental plates, however, are still poorly understood and remain matters of debate. While the AlpArray Seismic Experiment will provide new geophysical information of unprecedented resolution and reliability, discussions and interdisciplinary earth science research among AlpArray community targeted at key questions will lead to a better understanding of collisional orogeny in general and Alpine evolution in particular.