

## A revision on the Alps-Apennines relationships: structural signatures and geologic records of interfering orogens

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The relationships between the Alps and the Apennines represent a classical and still debated subject in the regional tectonics of the western Mediterranean (i.e. Argnani, 2012; Carminati et al., 2012; Turco et al., 2012; Vignaroli et al., 2008 and references therein). As a matter of fact, presently, the Alps and the Apennines form two independent and adjacent orogenic segments part of the Alpine Tethys-derived collisional system (Doglioni et al., 1998; Jolivet and Faccenna, 2000; Handy et al., 2010).

They have opposite first order tectonic vergence, W/NW for the Alps, and E/NE for the Apennines, both oriented roughly perpendicular to their arcuate trends. Whereas the tectono-metamorphic history of the exhumed lower plate-derived units of the two belts well tracks their long term subduction frame, the junction area of the two chains (a wide area between the Monferrato and Liguria) is formed by morphologic and tectonic zones characterized by regional structures and geological records result of the kinematically complex space-time interaction between the opposite dipping subductions active in the last 30 Myr (among others Molli et al., 2010; Giacomuzzi et al., 2011; Maino et al., 2013). Moreover, structural relicts of the pre-30 Ma orogenic architecture may be found in Liguria (among others Capponi et al., 2009; D'Atri et al. 2016) and further south in NE Corsica, which has been considered as the prolongation of the Alps (Malavieille and Molli, 2014 and references) or, in a more simplistic view, the inner zone of the Apennines (Principi and Treves, 1985 and following). Using the completely recorded and kinematically well-constrained geological frame of the young Taiwan orogen (Malavieille and Trullenque 2009; Ustaszewski et al. 2012 and references) we provide some general hints which can help to better constrain key aspects of the past evolution of the Alps-Apennines system and, in a more general way, the tectonic signatures for processes of interference between orogens related with opposite-dipping and propagating subduction systems (Molli and Malavieille 2011; Malusà and Garzanti, 2012; Vannucchi and Molli, 2013).

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