



Mechanics of current Alpine uplift: any clear message?

Pietro Sternai (1), Husson Laurent (2), Thorsten Becker (3), and Claudio Faccenna (4)

(1) University of Geneva, Geneva, Switzerland, (2) ISTERre, CNRS, Grenoble, France, (3) University of Texas, Austin, USA,

(4) University of Roma 3, Roma, Italy

Parts of the European Alps are uplifting at a fast rate but crustal shortening, usually the dominant contributor to the vertical surface motion, is moderate. Thus, deep mantle dynamics or isostatic adjustments following surface mass transport are often invoked as alternative mechanisms to explain current Alpine uplift.

Here, we review the observations and models of such possible alternative mechanisms, with a particular emphasis on mantle based, dynamic topography. It is not straightforward to reconcile observations and models, possibly due to the lithospheric or crustal filtering of any deep or surface forcing. Moreover, it is unlikely that a single process explains the current vertical kinematics in the Alps