

Journal of Structural Geology Student Author of the Year
Award 2015

The “Student Author of the Year Award” is made for an outstanding paper in which an undergraduate or graduate student played a key role in the research and publication. The recipient of this award for 2015 is

Luca Clemenzi

for his contribution, co-authored with **Giancarlo Molli, Fabrizio Storti, Philippe Muchez, Rudy Swennen and Luigi Torelli**

Extensional deformation structures within a convergent orogeny: The Val di Lima low-angle normal fault system (Northern Apennines, Italy).

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This thought-provoking paper addresses the issue of how extension develops within an overall convergent orogenic setting, using a case study centred about the Val di Lima normal fault system in the Northern Apennines of Italy. This thin-skinned extensional detachment affected the Northern Apennines during the late Miocene, and was studied via a combination of detailed field mapping, together with microstructural, petrographic, fluid inclusion and stable isotope analyses. It is the application of this broad spectrum of techniques which allows this paper to not only address the fundamental issue of extension during orogenic convergence, but also to act as an exemplar of modern science involving genuinely integrated datasets.

Detailed mapping shows that the extensional detachment is folded by subsequent out of sequence thrusts, thereby demonstrating the syn-convergent nature of the extension. In detail, fluid inclusion and stable isotope analyses of veins associated with the detachment constrain fluid evolution within and along the detachment, and show that it acted as a conduit-barrier system that affected fluid circulation in the upper crust. The detachment generated fluid overpressuring in its footwall, thereby reducing the effective normal stress at depth and influencing the overall mechanical behaviour of the thrust wedge.

Thus, shallow extension at about 5km depth was generated in response to thick skinned thrusting associated with wedge thickening, and was facilitated by fluid circulation along the extensional fault system.

We would like to extend our warm congratulations to Luca Clemenzi and his PhD supervisor, Fabrizio Storti, and to their co-authors, Giancarlo Molli, Philippe Muchez, Rudy Swennen and Luigi Torelli for this splendid piece of work, which the Journal of Structural Geology is proud to have had the opportunity to publish.