

Buried high-angle structures in the Marche area foothills (Central Italy)

Original

Buried high-angle structures in the Marche area foothills (Central Italy) / Invernizzi, C; Pierantoni, P P; Chicco, J; Costa, M. - In: GEOPHYSICAL RESEARCH ABSTRACTS. - ISSN 1607-7962. - ELETTRONICO. - (2018). ((Intervento presentato al convegno European Geosciences Union (EGU), General Assembly 2018 tenutosi a Vienna, Austria nel Aprile 2018.

Availability:

This version is available at: 11583/2915372 since: 2021-07-27T15:09:34Z

Publisher:

Copernicus

Published

DOI:

Terms of use:

openAccess

This article is made available under terms and conditions as specified in the corresponding bibliographic description in the repository

Publisher copyright

(Article begins on next page)

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/330485159>

Buried high-angle structures in the Marche foothills area (Central Italy)

Conference Paper · April 2018

CITATIONS

0

READS

47

4 authors:



Chiara Invernizzi

University of Camerino

99 PUBLICATIONS 1,242 CITATIONS

[SEE PROFILE](#)



Pietro Paolo Pierantoni

University of Camerino

100 PUBLICATIONS 1,140 CITATIONS

[SEE PROFILE](#)



Jessica Maria Chicco

Politecnico di Torino

28 PUBLICATIONS 28 CITATIONS

[SEE PROFILE](#)



Mario Costa

19 PUBLICATIONS 448 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



Rift-drift transition dynamics, with application to the Red Sea [View project](#)



Sviluppo dei sistemi sostenibile geotermici Associati della ai sistemivulcanici Puna di nelle Salta Province [View project](#)



Buried high-angle structures in the Marche foothills area (Central Italy)

Chiara Invernizzi (1), Pietro Paolo Pierantoni (1), Jessica Chicco (1,2), and Mario Costa (3)

(1) University of Camerino, School of Science and Technology, Geology Division, Via Gentile III da Varano 62032 Camerino (MC), Italy (chiara.invernizzi@unicam.it), (2) Department of Earth Sciences, University of Turin, Via Valperga Caluso 35 10125 Torino, Italy, (3) Via Selvelli, 6 61032 Fano (Italy)

Some SW-NE seismic reflection profiles representing the central part of Umbria-Marche Apennine chain to the Adriatic sea, and kindly provided by ENI s.p.a., were interpreted. These profiles allowed to define the structural setting and main features at depth, and the evolution of the Marche Apennine sector with more details with respect to previous literature. Along three main parallel transects, crossing the Mio-Pliocene Apennine range and its external Plio-Quaternary sector, we highlighted important sub-surface and deep-rooted (> 10Km) Plio-Quaternary structures linked to outcropping ones. They are NW-SE or NNW-SSE oriented, with very steep geometry, and they probably involve the upper crust basement. In particular, these structures are interpreted as transpressive structures related to lower depth SW and NE-dipping high-angle reverse faults and up-thrusts (positive flower structures). These latter structures involve the Pliocene-Quaternary succession at surface. Moving from W to E, three of these main sub-surface positive structures have been identified in the Marche foothills. Ultimately, deep-rooted high-angle structures determine a predominant upwards and along striking tectonic transport and they can also have possible relationships with deep fluid circulation. The innermost structure nucleated starting from Lower Pliocene, the easternmost ones from Upper Pliocene, confirming a NE migration of the deformation. Furthermore, NE-dipping normal and transtensive faults are present west to the compressive structures and with their same age; they can be interpreted as accommodation structures, similar to that found in the Po Plain underground (Costa, 2003). The recognized structures are well framed within the general context where thrust activity in central Apennine almost ceased from upper Pliocene to Quaternary times, and recent focal mechanisms are mainly strike slip (Mazzoli et al., 2015). The NNW-SSE or NW-SE orientated deep rooting sub-vertical structures can be interpreted as the conjugate fault system with respect to the ENE-WSW or NE-SW seismogenic faults in the Adriatic, although they are probably active at different times, and they reactivate inherited discontinuities.

References:

- COSTA M., (2003) The buried, Apenninic arcs of the Po Plain and northern Adriatic Sea (Italy): a new model . Boll. Soc. Geol. It. Vol. 122, fasc. 1, 3 – 23
- MAZZOLI S., SANTINI S., MACCHIAVELLI C., ASCIONE A. (2015) Active tectonics of the outer northern Apennine: Adriatic vs Po Plain seismicity and stress fields. Journ. of Geodynamics 84, 62-76.