

Solid Earth Discuss., referee comment RC1
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Comment on se-2021-29

Enrico Tavarnelli (Referee)

Referee comment on "Geodynamic and seismotectonic model of a long-lived transverse structure: The Schio-Vicenza Fault System (NE Italy)" by Dario Zampieri et al., Solid Earth Discuss., <https://doi.org/10.5194/se-2021-29-RC1>, 2021

Review report by Enrico Tavarnelli for manuscript n. se-2021-29 by Dario Zampieri, Paola Vannoli and Pierfrancesco Burrato titled: "Geodynamic and seismotectonic model of a long-lived transverse structure: The Schio-Vicenza Fault System (NE Italy)", submitted to Solid Earth.

To the SE Editor, Prof. Beatrice Magnani

Dear Beatrice,

This paper provides a new and original documentation of the structural history and seismotectonic evolution of a long-lived transverse lineament, the Schio-Vicenza Fault System, that dissects the thrust front of the Southern Alps in the Veneto sector of the Adria foreland microplate in NE Italy. This is achieved through a detailed and genuinely multidisciplinary approach, that integrates field mapping, stratigraphic investigation, structural analysis, seismic profile interpretation, current and historical seismicity, coupled with a wealth of data from a wide literature in the region. The topic dealt with in the study is of great interest to anyone that has an interest in understanding the evolution of the Southern Alpine system and in constraining the seismotectonic potential of the area. Moreover, the study illustrates an example of applicability of universal concepts of fault reactivation and structural inheritance under a 3D view, with emphasis on the interaction of strike-slip systems at triple junctions. These topics have generated a lively debate, and the submitted manuscript sheds new light in this direction, providing a very well-documented case. The Authors' interpretations are consistent with the data presented, and the original "zipper model" proposed to account for strike-slip reversals is very convincing.

The manuscript is well written and well organised, with English and presentation forms that are overall very good. The illustrations and tables are all clear, legible and very much informative (but see my separate comment to Fig. 2). The quality of the contribution, in all its parts, is overall high. Good credit is given to the existing literature, both methodological and regional. However, I believe that the manuscript would benefit

from a slight extension of the reference list, with citation of a few papers that are listed separately in this review report. Unfortunately, part of the suggested missing references happen to arise from my own research, and in general I am quite reluctant to self-advertise my work amongst colleagues. But the submitted manuscript refers to topics where my collaborators and I have long worked and published; thus I believe that a slight extension of the reference list with inclusion of the mentioned contributions would be highly beneficial for the reader with field examples in thrust belts that laterally flank the South Alpine chain.

I found this an extremely stimulating contribution and believe that it will make a very interesting title for a genuinely international and multidisciplinary audience. It is my opinion that the manuscript may be accepted for publication almost as it stands, with only the incorporation of a few sentences (with related references listed below), and the insertion of minor alterations to the text for the sake of an improved legibility. Therefore, I recommend without reservations that this manuscript is accepted for publication on Solid Earth only pending on minor suggested revisions, that are listed separately.

I require no anonymity and wish that all my comments are forwarded to the Authors. I hope that my review is received as a constructive and supportive indication, that may assist the Authors to achieve an even more suitable and documentally supported paper, and the Editor in formulating a final, positive decision in the interest of Solid Earth and of its wide, international readership.

NOTE - Comments and suggestions on how to improve the current version of the submitted manuscript are listed separately in the .pdf document attached to my review report.

Siena, Italy, 24 May 2021

Sincerely,

Enrico Tavarnelli

Please also note the supplement to this comment:

<https://se.copernicus.org/preprints/se-2021-29/se-2021-29-RC1-supplement.pdf>