

Interactive comment on “Exploring the shallow structure of the San Ramón thrust fault in Santiago, Chile ($\sim 33.5^\circ$ S), using active seismic and electric methods” by D. Díaz et al.

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The authors use seismic and geoelectric data to determine the structure of the uppermost 80–100 m around one of the fault zones in central Chile near Santiago. The manuscript is well structured and presents an interesting piece of interdisciplinary work. However, I would have quite a few suggestions for increasing the quality:

1. The measurements should be better described (2.1 and 2.4). The seismic lines and (possibly) the geoelectric profiles were certainly not acquired in a single piece. What was the length of each piece, line segment and the overlap? Where on profiles P1 and P4 are the central parts with the geophone spacing 5 m? What's about the data

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quality and data preprocessing of the geoelectric measurements? Did you remove outliers? The measured pseudosections (Fig. A3 and 4) seems disturbed and some data removed. How many? 2. 2D-traveltime inversion (2.2.2): Are the mentioned 2 references (2000 and 2008) the state of the art? Concerning the horizontal and vertical grid spacing, could you explain the used values, and if a resolution test was performed? 3. Electrical resistivity measurements (3.3): The question is whether VES measurements should be mentioned at first. I understand you are using the VES as additional measurement taking in account that the assumption for a reasonable application of VES (horizontal layering) is not fulfilled in this area with steep structures (see Fig. 9 and 10). 1-D resistivity presents serious limitations in the case of 3-D structures. In Fig. 4 the VES measurements mentioned as SEV. The extent of profiles should be marked. Why they are not located on profile L2? A bit more detail about the inversion code Res2Dinv would be necessary. The references for application of ERT are all at least 10 years old. No direct current is input (p. 345 line 2 and 15). 4. Results (Resistivity 3.2): Some tests with synthetic models would be necessary in order to clarify the dipping angles. 5. Discussion (4.): It is not clear how the results from the two geoelectrical profiles with a distance of approx. 7 km could provide information about anisotropy of material (p. 350 line 16–17). On the other hand, I do not really agree with the claim that the higher conductivity is only in relation to the presence of fluids. The occurrence of clay minerals (also in fault structures) could influence the resistivity in the same way. For the comparison of the ERT results (L1 and L2) the same color scale should be used (Fig. 9 and 10). What is the significance of the dotted line in Fig. 10 and why is log Ohm m of 2.2 considered as a “limit”? The narrow strip of yellow is unfavorable. 6. Some formal aspects: p. 355, line 13: Rauld: unpublished PhD, p. 355, line 28. Vargas: meeting abstract, p. 372: Estimated substratum depth: the unit is missed.

In conclusion, I feel that with a bit more work and a bit better description, the work would be publishable.