

Solid Earth Discuss., referee comment RC2  
<https://doi.org/10.5194/se-2021-13-RC2>, 2021  
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## Comment on se-2021-13

Anonymous Referee #2

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Referee comment on "Regional centroid moment tensor inversion of small to moderate earthquakes in the Alps using the dense AlpArray seismic network: challenges and seismotectonic insights" by Gesa Maria Petersen et al., Solid Earth Discuss., <https://doi.org/10.5194/se-2021-13-RC2>, 2021

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### COMMENTS on MT from ALPARRAY

This paper describes the computation of focal mechanism and moment tensors for the seismicity recorded by the AlpArray temporary network. The Alpine region has often mainly a low magnitude seismicity for which the authors were able to obtain good quality focal mechanisms, really important because usually lacking.

The paper is Interesting, mostly well written and rich of methodological descriptions, tests and information. However, the discussion part is too long, sometime redundant and after several elaborations, it is lacking of new conclusions. Indeed in the Conclusion paragraph quite nothing is said about seismotectonic reasoning.

I consider the paper needs really minor changes in the first part (methodologies and computations, see comments in the pdf file), while it would benefit from a more synthetic version of the Discussion part (see again comments in the pdf file).

Some smaller comments follow here:

In the abstract is not defined the time window of described seismicity. Indeed, western Alps in general cannot be considered as an high seismicity region.

All reference format in the text should be corrected.

I appreciated a lot all tests performed to asses when it is really useful to perform a super complete analysis (full MT inversion), being aware that otherwise the results are related to ambiguities and uncertainties due to the quality of seismograms in term of amount,

azimuthal distribution and SNR.

In the discussion some descriptions are redundant or not meaningful. For instance, describe together the extensional focal mechanisms of the western Alps and those in the Apennines, saying also they have a similar strike does really add an useful information? In my opinion, no. The authors may describe them separately to decrease any possible confusion.

Please, check the description of Supplementary material. In the first part some sentences are not comprehensible.

Please also note the supplement to this comment:

<https://se.copernicus.org/preprints/se-2021-13/se-2021-13-RC2-supplement.pdf>