

Interactive comment on “Joint analysis of the magnetic field and Total Gradient Intensity in Central Europe” by Maurizio Milano et al.

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Dear Dr. Caratori Tontini, Thank you, on the behalf of the co-authors, for your feedback and the constructive comments on our manuscript. We modified the text according to your suggestions: - Page 2, line 14: we clarify why we used the MF7 magnetic model data instead of the EMMP dataset, at 350 km altitude. The reason is that we noted not negligible edge effects in the map performed by upward continuation of EMMP data at so a large distance.

- Page 4. Line 9: we have added the sentence ‘Archean-Paleoproterozoic episodes of accretion and reworking (Gaàl and Gorbatshev, 1987) and covered by thin series of Phanerozoic rocks (Plant et al, 1998)’ that was erroneously removed from the text, as

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well as the citations.

- Page 8, line 20: we agree with your comment: the use of the total gradient technique itself does not provide information on magnetization direction. This information may be however obtained by comparing it with the magnetic field data at the same altitude, that is the main purpose of the manuscript. We fixed such concept.

- Page 11, line 5: thank you for your remark: we changed the related text, since the total gradient analysis, in such case of coalescence, does not help in discriminating the source effects one each other; it however provides information on the source regions with the stronger magnetization intensity.

- Page 12, line 6. We removed this sentence because unnecessary. The total gradient anomalies above the Precambrian Europe appear to be merged, because of a purely graphical artifact, due to the chosen colormap limits (maximum: 15 nT/km). We set this value to emphasize the weaker anomalies above the Paleozoic Europe.

- Page 14: our main goal is not addressed to a study of the TESZ anomaly only, we wanted instead to give a reasonable explanation of the CEML, so that we are interested to consider also the main magnetic provinces in central Europe, such as the Pannonian basin. Moreover, our analysis of the Pannonian basin (Figure 9D) was justified by a related objective of such analysis, shared also by previous researches on CEML anomaly: identifying the areas where reverse magnetization could be dominant.

- Page 16, line 7. We change from Moho (crust) to lithosphere as you suggested. However, in Milano et al. 2016, the Moho has been interpreted as the bottom of the magnetic crust thanks to the high agreement between the multiscale analysis results and the seismic data information.

Please read the attached modified version of the manuscript.

Please also note the supplement to this comment:

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<https://www.solid-earth-discuss.net/se-2019-40/se-2019-40-AC1-supplement.pdf>

Interactive comment on Solid Earth Discuss., <https://doi.org/10.5194/se-2019-40>, 2019.

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