

Response to editor and reviewer

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Induced telluric currents play a major role in the interpretation of geomagnetic variations

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We thank the editor and reviewer for the comments. We have modified the article as indicated below.

Sincerely yours,
Heikki Vanhamäki

- 1) Lines 18-20: "Mathematically, it is possible to fully explain the variation field by two equivalent current systems, one at the ionospheric altitude and another just below the Earth's surface.". Please provide 1-2 appropriate references here to justify your statement.

We added reference to Haines and Torta (1994) <https://doi.org/10.1111/j.1365-246X.1994.tb03981.x>, who demonstrate how the internal and external equivalent currents can be constructed using spherical (cap) harmonic analysis.

- 2) Line 45: please explain the terms "tipper vector" and "induction arrow" in the text since the readers of ANGELO are not very familiar with the terminology of geomagnetic induction.

We have added a clarification: "This is often represented graphically by using Tipper vectors (or induction arrows), which combine the real and imaginary parts of the transfer function at a particular frequency, so that the real arrows point towards highly conducting regions (see for example Fig. 6 in Engels et al., 2002")

- 3) Last but not least, I would like to ask you to incorporate in your MS the comment made by the referee regarding the article by Marsal et al. (2020).

We have added a clarification on our discussion of Marsal et al. (2020) based on the reviewer comment: "These issues can be avoided by careful selection of the inter-knot frequency in the spline expansion, based on previous knowledge of the largest frequencies of the target phenomena, as discussed by Marsal et al. (2020)".