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Discussions
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Interactive comment on "Full-tensor gravity gradient eigenvector analysis for locating complex geological source positions" *by* Boxin Zuo et al.

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Reply: The purpose to introduce ΦZ in GTA is to distinguish the negative and positive anomaly in a data. As Fig.13 f. shows, tanφ will always be a positive value. To distinguish both of the negative and positive source in GTA, we added Φz in. We did not design GTA as an amplification filter of Φz. Because the numerical rang of tanφ is relatively very large. For example, in field data experiment, tanφ in the rang of [0,1.472e+03]. While Φz in the range of [-18,21] which nearly 1% of tanφ. The main contribution of Φz is identify the anomaly is positive of negative at a corresponding position. Yes, tanφ is used to local the centers of sources. But the edge information is also extracted from tanφ. tanφ display a peak value at the source center, and it will also display as a relative small value which in the position nearby the source centers. So we utilize these small tanφ values to delineate the contours of sources. Yes, Φzz

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provides more detail information of source than Φz. But in this research, for the goal of distinguishing the negative and positive source, Φz can provide enough information. Thanks for your valuable suggestion, in further research, we want add Φzz in and utilizes it to extract more detail source information.

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