Interactive comment on "Autonomous underwater vehicle based marine multi-component self-potential method: observation scheme and navigational correction" *by* Zhongmin Zhu et al.

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Dear Anonymous Referee, Thank you very much for your comments and suggestions. According to your advice, we have revised this manuscript as follows.

Comment 1: "In section 2.1, how to deal with natural noise, such as noise caused by surge?", Response: Generally, the natural noise could be removed by detrend the observed data, we usually fit the original data by polynomial of low order, and subtract the results from observed data. More accurate processing requires other ocean current observations. we did not observe any obvious surge phenomenon in this case.

Comment 2: "In section 3.1, could the author propose improvements in installation methods in more detail?" Response: Deep-towed arrays are subject to noise from wave motion, and limits tow speeds to 1–2 knots (0.5– 1 m/s), In contrast, sensors mounted on AUV do not move with waves, AUV borne SP method are an efficient, effective, and low noise means of collecting marine SP data.

Comment 3: "It may be better to add a schematic diagram of the navigation trajectory in Figure 2." Response: Yes, it is better to add a AUV trajectory in Figure 2, but most of the time, The AUV move in the water it difficult to show the whole path of the vehicle in the picture, the path of AUV in water has been shown in Figure 5b.

Comment 4: "The heat map in Figure 7 should add units" Response: units have been added, sorry for the mistake.

Appreciate. Sincerely, Zhaoyang Su

Interactive comment on Geosci. Instrum. Method. Data Syst. Discuss., https://doi.org/10.5194/gi-2020-24, 2020.
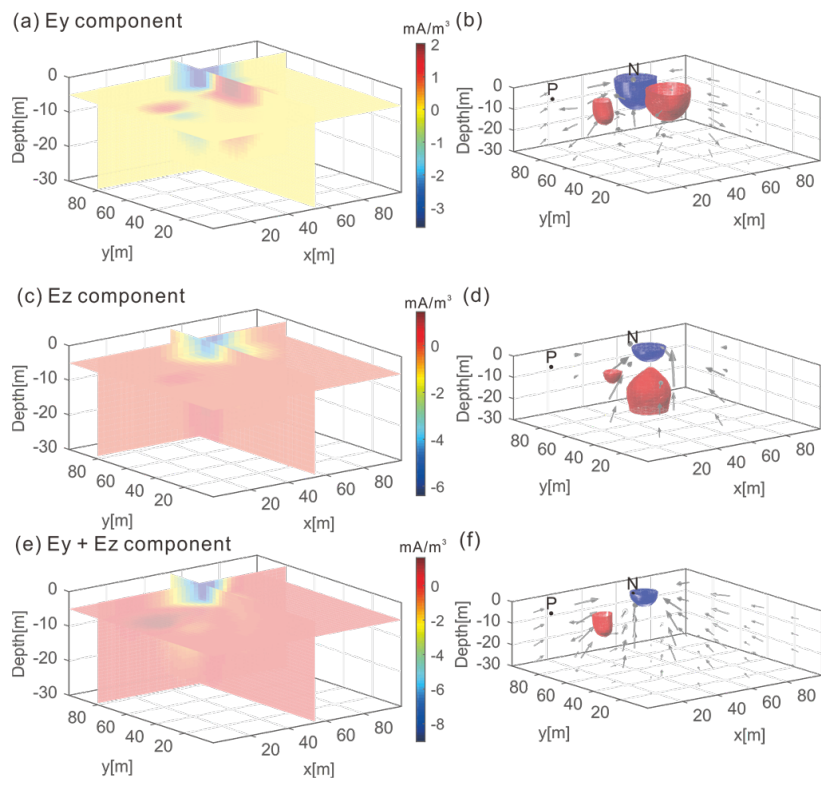
(a) Ey component

(c) Ez component

(e) Ey + Ez component

(b)

(d)

(f)

Fig. 1.

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