

## ***Interactive comment on “Evaluations of an ocean bottom electro-magnetometer and preliminary results offshore NE Taiwan” by Ching-Ren Lin et al.***

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Review of GI-2019-13 “Evaluations of an ocean bottom electro-magnetometer and preliminary results offshore NE Taiwan” by Ching-Ren Lin et al.

In this paper, you proposed an ocean bottom electromagnetic receiver (OBEM) for marine MT data acquisition. I think your achievement in this paper is very interesting. However, basic concept of your OBEM was almost based on existing OBEM (ksaya,2009). Hence, I suggest you enhance the difference and advantages of your instruments. This paper also discussed the field operation and data, but there is a lack of necessary data and discussion. Therefore, my decision of this paper is “major revision”. My questions

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and other suggestions are as follows.

1. I suggest add important result of marine MT data acquisition, such as Coherence between horizontal magnetic components and the electric field component, and the Apparent resistivity and impedance phase.
2. I suggest add compare with the OBE and OBEM from (kasay, 2009), Qmax3 from Quasar. Add a table present the key specification such as Noise level, dynamic, power consumption, time drift error size, and cost.
3. The details of electrode, fluxgate sensor and amplifier of your OBEM are not described.
4. Figure and tables should be clear and simply. Table1-3 can be replaced with figure. the tables are too large to reduce paper space; figure 1 and figure 2 should be redraw to clear; figure4-6, the font size too small to read. Background in Figure 11 is too vague to read.
5. The ADS1278 is suitable for audio frequency signal measurement, but the samples is 10Hz, the ADS 1278 is not the best choice. Why choose ADS1278?
6. The abstract should enhance the innovation design of the OBEM compare the existing OBEM.
7. Line 37-line 40 and L45-L49 introduce CSEM method. But your OBEM only used to MT data acquisition. I suggest to delete this sentences.
8. The OBEM integrated the beacon (RF-700A and ST400A) which are expensive. Why not developed a beacon module just like MicroOBS from Sercel?
9. The fluxgate sensor is installed in glass sphere, the distance between data logger and sensor may be very short, how to reduce the disturbance (EM noise) from data logger while writing data to SD?
10. In 4.1, the description of noise and linearity is too simple to give details. And the

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test of release is too detailed because the release is from EdgeTech not developed by author.

11. Reference 2 is the same as reference 3?

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