Geoscientific
Instrumentation
Methods and
Data Systems

Discussions

Open Access

GID

**Interactive
comment**

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

Denghai Bai (Referee)

dhbai@mail.iggcas.ac.cn

Received and published: 7 August 2019

For marine natural resource explorations, the controlled source EM (MCSEM) methods are usually deployed. The natural source EM is used mostly for detecting deep structure of the crust /lithosphere. This manuscript describes a story of evaluations of a natural source marine EM system. I've never seen a paper that gives us so detailed information on how to evaluate an EM instrument. But I'm not sure the work would be published at the moment unless some major revisions be made. Here I'd like to make some suggestions: 1. As I know, some OBEM systems have been developed and deployed in the world (such as SIO-MKIII, LT-OBEM, etc.), I'd like to know what

are the new innovations of the OBEM in this MS? 2. Although the OBEM is a complex integrated system with variety of advanced S&T knowledges, the key units are the data logger, magnetic sensor (fluxgate), electric sensor (electrodes). To evaluate the performance of these delicate units, sophisticated and professional calibrations are needed. The evaluation tools and methods employed in this MS seem like some operational manual step by step which are not enough and unnecessarily described so detailed. For example, the FLUKE726 is an multi-function process calibrator for industrial use, It is not enough for the precise calibration of Geo-EM equipment. 3. For OBEM system the most important feature to be calibrated is the frequency responses in the effective frequency band. I do not find any words about this in the MS. 4. Table 3 to table 7 are really not necessary. Some curved pictures would be better. 5. Calibration of fluxgate is one of the most important work for OBEM. What is the result for this evaluation? 6. Temperature feature is one of key specifications for fluxgate. Calibration of temperature feature should be done before submitting the MS. 7. What does it mean by BBYB and SH1 respectively? 8. It is really strange for the result of the offshore experiment. Why does only the HY component be affected by the earthquakes? 9. Figure 10: Names and notes should be clear and mark the English by the Chinese words. 10. Figure 11: a small inset figure showing the location of the field work should be added. The main body of the figure can use a detailed seafloor topography as the base map.