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Geoscientific Instrumentation Methods and Data Systems Discussions

Interactive comment on "A new borehole electromagnetic receiver developed for CSEM methods" *by* Sixuan Song et al.

Anonymous Referee #1

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The authors should clarify in a clear way what is the real novelty of this contribution and what is the real step forward with respect to the pertinent literature. At this stage, this is not clearly stated. The work sounds as a technical report and has not a scientific soundness.

About the specific comments.

1) The introduction is written in a bad and generic way. There are few statements wrong such as "The borehole-surface electromagnetic method is an electromagnetic survey method that supplies a high-power alternating current with a horizontal electrical dipole and receives an electromagnetic response from the ground, tunnel, or borehole being measured." This definition of the electromagnetic method is not correct since the description of the sensing phenomenon is nots correctly stated.

Other statements are provided in a generic way and without references, such as . "In comparison with the conventional surface electromagnetic method, the borehole-surface electromagnetic method has a deeper detection depth and a higher resolution." "Multi-component data can help researchers better interpret the relevant properties of subsurface media."

2) What is the attitude information ? Please, provide the explicit definition/meaning of "attitude".

3) Row:200. What is the nature of the interference at 50 and 200 Hz ? Why the double interference for Bx ?

4) Row 205. Please show the spectrum of the signal.

5) Figure 8 is not clear and should be redone.

6) Row 240. "The expected target frequency can be seen more intuitively from the time-frequency spectrum." has not scientific meaning.

7) Figure 9. Is the scale in the figures provided in dB ? what is the unit of the time (hours, minutes, seconds..) ?

8) Explain explicitly the details on how the frequency time analysis has been done. At this stage, the section "field tests" is written in a very bad way.

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