

Review report on gi-2019-39

Title: Design and Applications of Drilling Trajectory Measurement Instrumentation in Ultra-deep Borehole Based on Fiber Optic Gyro

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In this work, the authors developed a drilling trajectory measuring instrumentation based on the interference fiber optic gyro. The purposed instrumentation can work continuously, for 4 hours, in an environment where the ambient temperature does not exceed $270^{\circ}C$ and the pressure does not exceed 120MPa. From the specific experiments, the instrument has the characteristic of anti-electromagnetic 20 interference, and enables work to be carried out in the blind-zone of existing technologies and instrumentation. Obviously, this manuscript is well-written and interesting. Specifically, this referee has the following comments for the authors to improve the quality of this manuscript:

- (1). The Figure 1 is not clear. It's better to be replaced by a clearer one.
- (2). Page 4, Line 8: "... in figure 2." to "... in Figure 2.". The similar typos should be also corrected.
- (3). The appropriate punctuation is required behind the mathematical formulas. For example, a period is needed behind Equation 1.
- (4). Below Equation 4, please delete some expressions with Chinese words. The same problems occur below Figure 17 and in Equation 7.
- (5). Check the formats of Reference carefully, and unify the formats.