

Interactive comment on “Magnetogama: An Open Schematic Magnetometer” by Wahyudi et al.

Wahyudi et al.

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The authors thank to the anonymous peers for his/her time and discussion towards our publication. We would like to give some answer respectively.

Comment 1:

To consider the validation of the proposed sensor must be compared with other instrument with similar characteristics. So, how can you conclude that the Magnetogama it is a good vectorial fluxgate sensor if you don't compare it with another vectorial one?

Author's response 1:

The authors agree with the reviewer to some extends. It will be a good practice to have sensor to sensor fluxgate magnetometer calibration. Up until now, the authors don't have access to other type of magnetometer. We will immediately perform sensor to sensor calibration whenever we get such access. Fortunately, there are many refer-

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ences which performs triaxial magnetometer's calibration without using other fluxgate magnetometer [1,2,3,4,5,6]. This calibration procedure involves rotating sensor and measure considerably stable ambient magnetic field as function of sensor orientation relative to it.

Comment 2:

The contributions of the author as well as the main goals of the paper, should be better reflected in the conclusions section.

Author's response 2:

The contribution of the authors is to provide for other researchers and/or students in order to have general and easy to understand schematic of magnetometer. This premise is significant for some developing countries where they have limited budget and access of information. This contribution will be better represented on the conclusion.

Comment 3:

In addition, grammar and text should be reviewed. There are too many typo mistakes. Minors: Typo: Page 1, Line 2 (1,2): easy. 4,20: There is a mistake related to the range of dates for the test. Figure 6: mistake in the label of Y axis Follow the same nomenclatures along the entire paper (nT) Lengthen x-axis to see clearest the latest data Figure 3: Explain the figure and add a legend with the colors and symbols that appears on it. Bigger numbers and names.

Author's response 3:

We are in process of improving the quality of our manuscript including grammar and typo mistakes. Those mistakes will be corrected on the final manuscript. The date of the test has been corrected to February, 8th - 12th 2016. Figure 6 will be updated with the correct version. Figure 3 will be updated with the correct version.

Bibliography:

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- [1] Cai, J., Andersen, N.L. and Malureanu, C., 2001, October. In-field practical calibration of three-axis magnetometers. In Proceedings of the 2010 international technical meeting of the institute of navigation (pp. 67-73).
- [2] Merayo, J.M., Brauer, P., Primdahl, F., Petersen, J.R. and Nielsen, O.V., 2000. Scalar calibration of vector magnetometers. *Measurement science and technology*, 11(2), p.120.
- [3] Pang, H., Li, J., Chen, D., Pan, M., Luo, S., Zhang, Q. and Luo, F., 2013. Calibration of three-axis fluxgate magnetometers with nonlinear least square method. *Measurement*, 46(4), pp.1600-1606.
- [4] Renaudin, V., Afzal, M.H. and Lachapelle, G., 2010. Complete triaxis magnetometer calibration in the magnetic domain. *Journal of sensors*, 2010.
- [5] Vasconcelos, J.F., Elkaim, G., Silvestre, C., Oliveira, P. and Cardeira, B., 2011. Geometric approach to strapdown magnetometer calibration in sensor frame. *IEEE Transactions on Aerospace and Electronic Systems*, 47(2), pp.1293-1306.
- [6] Vcelák, J., Ripka, P., Kubik, J., Platil, A. and Ka'par, P., 2005. AMR navigation systems and methods of their calibration. *Sensors and Actuators A: Physical*, 123, pp.122-128.

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