

## ***Interactive comment on “Investigation of a low-cost magneto-inductive magnetometer for space science applications” by Leonardo H. Regoli et al.***

**P. Mahavarkar (Referee)**

mahavarkarprasanna@gmail.com

Received and published: 5 February 2018

General comments:

The authors have done a very good work and I believe the manuscript deserves publication in the journal provided some minor changes are introduced.

Detailed comments:

Page No. 2, Line No. 8

“The Earth’s magnetosphere, whose field strength varies from about 60, 000 nT in polar LEO orbit to about 100 nT at geosynchronous orbit, have different wave populations

C1

present with frequencies ranging from a few mHz to a few Hz on both the day- and nightside.”

It would be better if the authors mention the approximate time duration for example day (\_\_\_\_) and night (\_\_\_\_).

Page No. 2, Line No. 24 and 26

“The use of ground-based magnetometers, depending on their distribution around the globe and in combination with global models of the magnetosphere, can also shed light on how global the disturbances are, by correlating the signals observed at different latitudes with the length of the corresponding magnetic field lines.”

What do the authors mean by the length of the corresponding magnetic field lines? Secondly please correct the spelling ‘disturbances’.

Page No. 3, Line No. 20

“sensors have predominantly been used for space missions, namely fluxgate and helium magnetometers. However, due to their high fabrication costs, relatively large size and high power needs,”

Please tabulate the power consumption for the fluxgate and helium magnetometers and the approximate weight.

Page No. 3, Line No. 22

“One approach is to miniaturize fluxgate magnetometers,”

Miniaturize in terms of weight or size? Please mention the same.

Page No. 4, Line No. 23

“(SWAP+C)”

SWAP+C ?

C2

Page No. 5, Line No. 3 and 4

“The modifications thus far consist of optimization of internal parameters of the sensor that allowed us to improve its performance.”

In my opinion sentence is not correct.

Page No. 5, Line No. 6

“The COTS version shown in Figure 1 consists of the orthogonal coils (indicated with red rectangles),”

Please insert a better quality image where the coils are visible. It is difficult to visualize the components.

Page No. 5, Line No. 8

“CommBoard introduces a constant interference of up to several hundreds of nT”

Please mention the approximate range.

Page No. 5, Line No. 17

“where k is a property of the coil,”

What property?

Page No. 12, Line No. 15

“presented here since we don’t measure”

Correction: ‘do not’

Page No. 16, Line No. 13

“needing a separate search”

The word ‘needing’ has to be replaced by an appropriate word

---

C3

Interactive comment on Geosci. Instrum. Method. Data Syst. Discuss.,  
<https://doi.org/10.5194/gi-2017-53>, 2017.

C4