

## ***Interactive comment on “An automatic DI-flux at the Livingston Island Geomagnetic Observatory, Antarctica: requirements and lessons learnt” by Santiago Marsal et al.***

**Anonymous Referee #1**

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Review of Marsal et al., 'An automatic DI-flux at the Livingston Island Geomagnetic Observatory, Antarctica: requirements and lessons learnt'.

The manuscript describes the infrastructure and methods necessary to operate a GyroDIF, an automatic absolute instrument for geomagnetic measurements, at a semi-permanently occupied Antarctic station. Operational conditions for the AutoDIF and the GyroDIF are discussed.

The manuscript is very well organised and the quality of the figures is good or very good. The English can be improved. Regarding the figures, I suggest to improve figures 3, 4, 5b by adding axes on the upper and right side of the plot and generally to make them appear more aesthetic.

C1

There are two shortcomings, and (minor) revision of the article would be an excellent opportunity to address them: Despite the title, we learn very little about the actual observations in Antarctica and any lessons learned there. Please be more informative about the current state of the instrument in Antarctica and possibly include additional data on the performance that was collected since the article was first submitted. Secondly, the list of references looks rather short. However, some concepts that are presented in the manuscript might have been used by observatory operations before and it might be valuable to mention where such concepts have been used before, or to cite relevant literature and/or review articles

Declination should be written as declination, not with capital D.

In the following, please find detailed comments. Most points regard the English language. Please check the whole manuscript for English language. p. stands for page l. stands for line, then comes the text which I find sounds strange. This is followed by a ' ->' symbol followed by suggestions for improvements or a question mark. ANY COMMENTS AND QUESTIONS ARE WRITTEN IN CAPITALS.

Title learnt -> learned (LEARNT IS OK, BUT LEARNED would be correct both in British and American English)

p.1

I. 9 magnetometer bar -> magnetometer

I. 12 practically removed -> ?

I. 15 due to its simpler necessary -> due to the simpler infrastructure that is necessary

I. 21 current society -> modern society

I. 23 augmentation of the -> improvement of

I. 26 UNCLEAR: do you mean these things have been automated or should be automated?

C2

I. 28 learnt -> learned (IF YOU WANT)

p. 2

I. 5 RECORDS OF WHAT?

I. 6 measuring -> magnetic

I. 13 do no rely on a -> are not fixed to a

I. 28 rate-gyroscope -> ???

I. 30 custom electronic -> custom-made electronic

I. 31 govern -> control

p. 3

I. 1 leading to -> from the

I. 7 between the above -> either

I. 21 70 W. -> 70 W for the GyroDIF.

I. 23 path -> line of sight

I. 29 entailed -> impose

p. 4 I. 2 target -> desired

I. 6 the gyroscope -> the number of gyroscope

I. 10 no -> the absence of

I. 12 preserving in the system batteries in prevention of -> in order to overcome

I. 13 generation. -> generation by means of batteries.

I. 18 QUESTION: When you write masonry blocks, what do you specifically mean?  
Which type, what are they made of? Are they non-magnetic?

C3

I. 23 QUESTION: foam glass, which type, is it non-magnetic?

p. 5

I. 12 winter -> local winter OR austral winter (PLEASE USE THIS ALWAYS WHEN YOU MENTION SUMMER OR WINTER)

I. 14 use to -> usually

p. 6

I. 30 CAN YOU RECOMMEND A FILTER?

p. 7

I. 16 the opposite is left to the natural cooling -> but cooling is passive.

p. 7

I. 18 WHY DO YOU CALL THIS BASELINE? IN MY VIEW, BASELINES ARE OFFESTS (THAT ARE SOMETIMES OBTAINED BY FILTERING MEASUREMENTS). HERE, THE MEASUREMENTS ARE FILTERED; BUT THIS DOES NOT LEAD TO A BASELINE IN THE CLASSICAL SENSE.

p. 8

I. 3 I WOULD COMPARE THE 3 nT ACCURACY WITH THE ACCURACY THAT IS NECESSARY FOR GETTING USEFUL SECULAR VARIATION DATA, AND NOT WITH THE 5 nT STANDARD BY INTERMAGNET.

p. 9

I. 14

perdurable -> ?

I. 14 generators from -> generators at

C4

I. 26 system, which is duplicated -> control system, which is redundant

I. 28 passage of current through -> distribution of current to

p. 10 l. 3 next -> 2017????

Table 1 Comparative table -> Table comparing

Figure 4 box around formula for T (you call it inset)

Figure 5b What is the set point used here?

Figure 6 Figure caption: I would not use the term 'baseline'

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