

# Review of GI-2018-37

---

## General

The authors address a critical point in geomagnetic measurement. The data quality directly depends on the observations accuracy. The method presented here seems good for highlighting the human factor.

## Comments

- The basic observatory concepts are explained here (variometer, scalar and vector absolute measurement, diflux, baselines, ...). However, the descriptions are short so that they could remain nebulous for a reader that is not familiar with the observatory practices. Maybe another reviewer or the editor could give an opinion on it.
- As already mentioned in the preliminary review, the intercomparison sessions organized during the biannual IAGA workshop on geomagnetic observatory instruments, methods and data systems follows a slightly similar method. The authors could refer to it and explain in a few words in what it is similar or different. The proceedings of these workshops are available at : <http://www.iaga-aiga.org/publications/proceedings/>
- P4 L 15: The whole paragraph describes the processing but it is not clear. A few equations could help to understand easily.
- P5 L15: since the variometer baselines are used here the field variation should have (almost) no impact on the result. Another possible error can be due to the horizontality of the fluxgate sensor. For measuring the declination, the observer has to put the sensor in the horizontal plan (apart the alignment errors that are compensated by the measurement protocol). The horizontality (i.e. the vertical circle at 90°) should be controlled at each step otherwise, there is a projection of the Z component.
- P5 L17: the error is not directly reported in the final result because a baseline adoption is performed (i.e. a curve fitting). Therefore, if the error is purely random and the amount of measurement sufficient, the errors are strongly attenuated.

## Technical

Generally the English language could be improved.

P1L18 : ~~Introduction~~ Introduction

P1L23 : Actually there is no special recommendation. For instance, the BGS uses the HDZ configuration. That mainly depends on the variometer design.

P2L2: ~~This is meaning~~ That means

P3L8: given in the Intermagnet reference manual (St Louis, 2011)

P3L14: I would suggest a reference: Gonsette, A., Rasson, J., and Humbled, F.: In situ vector calibration of magnetic observatories, *Geosci. Instrum. Method. Data Syst.*, 6, 361-366, <https://doi.org/10.5194/gi-6-361-2017>, 2017