

### **Reply to anonymous referee 3:**

**Comment of referee:** “The manuscript has been revised for minor corrections. Points raised have been addressed. The paper can be accepted for publication”

**Reply:** Thank you for the effort to read the article and to check if raised points have been addressed in a satisfactory way.

At this place I would also like to express my thankfulness also to Lars Pedersen and Sergey Khomutov who also made the effort to read, and correct the manuscript. You gave a lot of valuable hints and very constructive comments. Many errors could be corrected and misleading wordings could be improved for a better understandability.

All referee-comments and our replies are traceable in the peer review part of the online publication.

Nevertheless I want to reproduce one comment of Lars here. Lars is the supplier of the FGE instrument. I consider his comment very important, because it shows that our paper must not be misunderstood in any way as criticism to the FGE instrument.

**Comment of Lars:** “It makes perfect sense to combine fluxgate and induction coil data, since it can ‘improve’ the fluxgate data quality above 30 mHz. And I guess that merged data also above 1 Hz (like 10 Hz data) will be useful for many purposes.

But if data shall follow the INTERMAGNET standard for 1 second data, they have to be low-pass filtered starting at 0.2 Hz, and this means that there may not be any useful signal left above 0.3 Hz. And then it may be difficult to find pulsations even in the merged data. But it will still be a big improvement.”

**Our Reply:** Thank you for the flowers! Yes, literally spoken a 0.2Hz low-pass filter is required by the INTERMAGNET Standard. But that is more a feature of the INTERMAGNET standard than a deficiency of our method. As the spectrograms of actual data show, there is absolutely no need to apply such a filter to the merged data. This is another slight “reinterpretation” of the INTERMAGNET standard in addition to the tree digits of resolution we propose. We added in the discussion: “However, in order to take full advantage of the high frequency information, the data should reported to three decimal digits (1 pT) and the 0.2Hz low-pass filter prescribed by the present INTERMAGNET one second standard does not have to be applied. “