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Geoscientific Instrumentation Methods and Data Systems
Discussions

Interactive comment on "Saint Petersburg magnetic observatory: from Voeikovo subdivision to INTERMAGNET certification" *by* Roman Sidorov et al.

Anonymous Referee #1

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This is a useful reference for any data users on the history and improvement of the Saint Petersburg geomagnetic observatory with examples of data that provide information about the data quality and how the variations at that location compare to surrounding stations. The manuscript is generally well written and organised and in my opinion suitable for publication in GI. In some parts some more details would be useful. Below are my suggestions for improvement to the authors. (It seems that a few modifications have already been made to the version I was originally sent for review/assessment, so please just point this out in a reply if any of the below issues have already been addressed.)

a) I find the historical introduction how the present day data are linked to a long historical time series very useful, but I have difficulties to fully understand how much relocation has taken place and over which distances. How far away is Voiekovo from Pavlovs and Krasnoe Ozero? It might be useful to add a second panel to Fig. 1 with a map only of the surroundings of Saint Petersburg and the locations of these subsequent stations. The geographic coordinates of the observatory also would be useful information.

b) Text around Eq. 1: What was the sampling rate of the base station?

c) page 3, l. 20: clearly it would have been best to repeat the survey after removal of the source of disturbance. Although it sounds like a likely explanation that the gardening equipment caused the anomaly and the anomaly probably mostly vanished after its removal, has this in fact been checked?

d) Beginning of section 2.2: It would be informative to mention the material that was used for the pillars.

e) In section 2.3 the pillar difference should be discussed.

d) p.5, third paragraph: it could be useful to say more explicitly that the method that has to be used here is differential GPS

e) p.8,lines 7-8: "range of adopted baseline variability" sounds like the adopted baseline varies by those numbers over the year, which would be too much and clearly is not the case. As far as I understand the figure caption what is shown are the differences between baseline-corrected fluxgate recordings and the absolute values. Moreover, the larger values clearly look more like outliers (most likely in the absolute measurements), and rather than only giving the range it would make sense to also give the median or at least mention this important fact, that is clearly seen in the figure, in the text.

f) What are the short blue lines in Fig. 8?

g) p. 8, l. 23: I'm not convinced that a good agreement between data and models has really been demonstrated by these few numbers. At least the statement is too general, it should be discussed why differences >100nT can be understood as good agreement in this case.

Technical details: -p.5, l. 29 and p. 6, l.15: correct the brackets around references (bracket only around year if it is included in the running text like this) -p.7, l. 21 replace "registering" with "recording" -p.7,l. 32 better say "baseline jumps" instead of "baseline splits" -p.8,l. 6 in my opinion the sentence would be easier to understand if "values" was replaced by "fluxgate recordings"

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