

Response to Interactive comment on “*Passive seismic experiment ‘AniMaLS’ in the Polish Sudetes (NE Variscides)*” by *Bociarska et al.* by Simon C. Stähler, 02 Jun 2021

Dear Dr. Stähler,

We are grateful to have received your review of our manuscript which led to important improvements of the manuscript. Below we address your comments in detail. Our responses are written in bold font.

The manuscript *Passive seismic experiment ‘AniMaLS’ in the Polish Sudetes (NE Variscides)* by *Bociarska, Rewers et al* is a description of the installation process and data quality of a temporary network in Silesia, Southern Poland. The experiment is a high-density network of broadband, wideband and short period seismic sensors with a scientific focus on regional crustal structure and anisotropy.

The paper is well-written and complete and provides a full description of station installation and performance that will be helpful for future users of this dataset. It covers all the necessary parts of such a network paper and can be published with a few small revisions, mainly to improve readability.

L. 41: What is “the study”? Maybe write “the experiment” or “the network”

Authors: OK, changed.

L. 44: “Observations of anisotropy of seismic wave velocity” (remove the “the”)

A: OK, corrected.

L. 49: Here I miss an overview over the paper. This description is about the network and the research planned with it. Could you please add a paragraph describing the structure of the paper?

A: OK. Some short form of an overview was already present at L. 29-35 (original ms.). We moved it to the end of the chapter, extended it and made it more systematic.

L. 52. Remove “it”

A: OK, corrected.

L. 54: remove “with” before 10

A: OK, corrected.

L. 130: Maybe mention here that a data-based verification was done and is shown in sect. 3.2?

A: OK, explanation added.

L. 164: I think that the official ObsPy reference is now Krischer et al 2015

A: OK, corrected.

L. 298: Please write as Stähler, in Latex $\text{St}\{a\}$ her

A: OK. We are sorry for incorrect spelling, we corrected it.

L. 298 and figs 11, 13: I am surprised to see this low performance of a “normal” CMG-40T. So far, I had assumed that it was an issue with the OBS variant. The authors might want to reference

TasiÄ I., and Runovc F.; Seismometer selfâ noise estimation using a single reference instrument, J. Seismol 2012. 16, no. 2, 183–194, doi: <https://doi.org/10.1007/s10950-011-9257-4> which shows a much better CMG-40T performance and

Simon C. Stähler, Mechita C. Schmidtâ Aursch, Gerrit Hein, Robert Mars; A Selfâ Noise Model for the German DEPAS OBS Pool. Seismological Research Letters 2018;; 89 (5): 1838–1845. doi: <https://doi.org/10.1785/0220180056>

Where we have a direct comparison of the “classical” CMG-40T and the OBS version. The noise curve shown here looks very much like what we saw for the “OBS version”. This does not speak well for the manufacturer.

A: OK. Yes, thank you for references, we will use them. Also, we realized and corrected our mistake which made the discussion and comparison of the sensors misleading:

We introduced some confusion in the manuscript due to incorrect naming of the sensors. The sensors we were using are actually CMG-6T, as we stated once at the beginning (in L.54 of the orig. manuscript), but we also (incorrectly) wrote that they were equivalent of CMG-40T sensor, and subsequently, we used this name in the discussion and figures. We did it because:

(1) We’ve been told by a Guralp representative that these are basically the same sensors from the user’s point of view,

(2) the nominal responses of both sensors (based on IRIS NRL RESP files) were practically identical (differences in poles definitions at 4th significant digit),

(3) technical specifications of both sensors, published by Guralp, were basically the same (except different sets of sensitivity options and operating temperature) – bandwidth, electronics noise level (-172 dB), power consumption (480 mW), dimensions and weight were exactly the same,

(4) initially, we could not find papers discussing the performance and PPSDs for the CMG-6T, but I found some for CMG-40T.

So, based on the above info, we assumed (wrongly) that, most likely, 6T and 40T are two commercial names for the same product, and I assumed (wrongly) that it is safe to refer to papers describing the performance of CMG-40T and compare them to our sensors.

Other thing is – we were not aware that two different versions of CMG-40T exist – land version and OBS version.

Therefore, your comment makes the situation more clear. We changed the text (and labels in figures), we used actual names of sensors (CMG-6T), corrected the discussion accordingly, and used the references you suggested. Also, after a more thorough search, we found one publication where PPSDs of CMG-6Ts were presented (Tillmann, 2006) and were consistent with our observations.

So, actually, there is no contradiction which surprised you – about land CMG-40T behaving as OBS CMG-40T, but, I guess it is still surprising why CMG-6T land sensors show the same/similar noise performance as CMG-40T OBS sensors.

Figure 15: Please add a legend to the figure.

A: OK, a legend added.

Table 2: I think that two significant digits would be enough, given the sigma

A: We rounded the numbers to one decimal digit, we hope it is acceptable.

L. 445 -464: I think it is not really necessary to repeat all the scientific plans here, given that this paper is well-focused on the instrumentation

A: OK, scientific plans are now shortened substantially, some parts of the original text were used in the Introduction.

L. 466: Could you mention whether there is a plan for future public release of the data and metadata?

A: OK, we added information that the data will be open in 2023.