

Interactive comment on “Data quality control and tools in passive seismic experiments exemplified on Czech broad-band seismic pool MOBNET in the AlpArray collaborative project” by Luděk Vecsey et al.

Anonymous Referee #3

Received and published: 29 August 2017

The manuscript by Vecsey and co-authors reports on the data quality control tools developed and applied to MOBNET broad-band seismic temporary station pool, deployed for the AlpArray Seismic Network. The main aim is to outline procedures and tools developed by the authors and used for seismic data quality assessment that might be useful for future temporary passive seismic experiment. Overall, in the context of this journal issue I think the topic of the manuscript is appropriate and it might be of broad interest within the seismological community. However the manuscript needs still some improvement to be ready for publication.

C1

The paper is divided into two main parts: the deployment of the 20 stations within the AlpArray project in 2 separate passive experiment (AlpArray-EASI and AlpArray Seismic Network) and the hardware and software tools developed for the seismic data quality control that ensure a high data quality.

As a general comment I suggest to improve and to add details in all parts. For example, when describing the hardware tools developed for 4 different sensors (that is great!), it is not clear whether these tools might be useful in other sensor-digitizer configurations or are they specifics for the GAIA acquisition system. It appears as GAIA datalogger does not have a calibration system and mass re-centering system and the author had to supply these missing tools. Regarding the software: are the methods applicable automatically to the whole AA dataset? Do these tool still require a significant human intervention?

In the whole paper there is a large misuse of the "the". Please check it and I would suggest a grammar correction by a native english speaker.

More detailed comments below.

Abstract: P1 - L11: scientific methods → seismological applications P1- L12: observatory → you mean "Seismological observatories" P1- L12: full → the whole P1- L14: paid → dedicated to crucial issues like the detection of P1- L19: THE beneficial ... having large reliable set of high quality data from each group...

Introduction: Add some state of the art informations on the data quality control. Mention in the AA part the AA complementary experiments like EASI.

P1-L22: ... extend and dense stations distribution, for modern Earth interior researches. P2-L1: uses → makes use of P2-L21: and upper mantle, from the Earth's surface down to ~600 km of this extremely P2-L25 and later: Define MOBNET P3-L 4: The main purpose... P3- L8-10: rewrite the last phrase

Deployment of MOBNET: - Clearly separate the two experiments (EASI and AASN)

C2

- Describe the AA noise requirement and AASN geometry rules for both experiment
- Add more discussion and details in the noise PSD description and relate it to the stations setting (thermal insulation? building? environment?) - Why might be the reason for the long period horizontal noise exceeding the max noise level? How is the thermal isolation achieved? Or you could move the noise level description in the chapter 4.1?

P4-L1: was finished-> ended ; the twenty.. P4-L5: ... sites are classified as urban-free field locations P4-L6: .. noise, most of the stations meet the ...

Seismometer and GAIA control calibration devices: - Please expand the section with a bit more technical details. Now the section is too short and the real work done by the author do not appear properly. Moreover the reader need to know when do you use these devices, if they are a special tools to supply to GAIA datalogger functionalities, how do they work and if they are of some benefit for other sensor-digitizer couples.

P4-L30-31: I do not really get the first phrase. P5-L1: incorporated between: -> connects

Data quality control: P6-L10/L12: Delete first phrase (it is already clear). Re-phrase the second phrase. P6-L12: ... the necessary step to achieve and maintain an high quality level of recorded data. We applied during stations installation.... P6-L14: not sure that "ex-post" exist P6-L16: The measure of seismic ambient noise level is nowadays a... when searching and selecting. Once the station is installed, the ambient noise level has to be frequently checked to monitor... P6-L26/27: stations deployed in AlpArray-EASI and AASN. While the noise level for... requirements for most of the stations and for the three components,

- Please add more detailed discussion here (why for short period in some stations the noise level is high? and for long period? Possible explanations?) - Do you usually do noise measurement before selecting a site?

P7-L1: decipher-> spot?

C3

Sensor orientation P7-L21/22: do you guess why? P7-L23: daily means -> daily averages

- Is this control to be done manually on each station or is it automated?

Timing issues: - Is this methods applicable to the whole AA dataset, for example? and to permanent stations? Discuss this issue P8-L9: the time

Interchange of components P8-L25/26: raise the suspect that the three components of the signal are not correctly labeled and they might have accidentally been interchanged. P9/L4: in dependence on —> against the ?

P10-L22: amplitude means -> amplitude averages

Conclusions P10-L27: preceding -> previous P10-L30: ... in situ and allow to check the gain and the polarity of all three components. P11-L1: ... spectra ratios, average daily amplitude and...

Discuss here the applicability to other pool of your hardware devices and to other dataset (like the whole AA data).

Team list: Add the full names: Now on AA web site.

Figures: Figure 1: updated version of the AA station map? Figure 2: expand the caption describing explicitly the various dots and triangle and the period of deployment Figure 3/4: label each subfigure with a), b) etc and describe what we see