First of all, we would like to thank the reviewer for his time and constructive, thorough and helpful suggestions, which are each addressed below. Our responses are organized in the following color code:

- the original text of the reviewer (black)
- response to the reviewer comments (blue)
- text removed from the main article (lila)
- text added to the main article (green)

This work highlights an effort to develop robust seismic stations for Antarctica. As noted here and in previous work, operating seismic stations (or any other autonomous geophysical station) is challenging due to the environmental conditions, in particular the cold and dark. While all sharing of technological advancements are welcome, I feel that in this case, the authors have provided too few details to make the manuscript useful to the audience. I would encourage the authors to provide more information so that other researcher can more easily replicate their design. Below I have a few detailed comments.

We would like to thank the reviewer for the generally positive assessment of our manuscript and the helpful suggestions. We agree with the reviewer that more details are needed and will make our manuscript much more helpful to other researchers. Our responses to the detailed comments raised by the reviewer can be found below.

Detailed Comments:

Line 58: Perhaps a bit picky, while -20 C to -40 C is certainly cold, I'm not sure it is "extreme" since a Nanometrics trillium posthole 120 can operate to -50 C.

Thank you for this hint, which is not picky at all. Our temperature range from -20 to -40°C represents the average temperature range for operation. The temperatures can be warmer in summer and slightly colder in winter. We added this now in the main text. However, because most of our stations are buried in the snow, the temperature fluctuations are less extreme.

Line 75: Mention that Neumeyer Station is on an ice shelf (I had to look this up)

We fully agree. The information that VNA1 is positioned on an ice shelf is missing. We have added this now in our new version.

Line 93: Is it better to use the term Peli (or Pelican) case? A websearch for "Eurocase" doesn't led to the product, I only got to the product page by search the model number included in table 1.

We agree and want to thank the reviewer for his thorough research. Our boxes were originally ordered in a catalog and were termed "Eurocases" by the supplier. But the reviewer is completely right, that the correct term is "Peli ISP2 CASES - Inter-Stacking Pattern Cases". We changed this accordingly in the text and in Table 1.

Line 93: I notice on the spec sheet for EU080060-5010 that a minimum temperature is -30 C, have the authors had experiences with this product at colder temperatures?

The boxes themselves have experienced lower temperatures. However, as most operations where we handle and move the boxes occur mostly during the summer season when it is much warmer. Therefore we have only a little experience in terms of how they would behave under stress at temperatures below -30°C. Our station at Kohnen is exposed to an almost constant temperature of -40°C and less and we didn't notice any brittle damage to the boxes so far.

Hence, we assume that the boxes can be used at temperatures below -30°C. We speculate that the company has only a very small number of customers that use the boxes for these conditions. Therefore, tests on the material are probably not worthwhile for temperatures below -30°C degrees.

Line 110: More details on the XEOS XI-202 on the SeiDL Controller are needed? What exactly operations can they perform do? How much power do they consume?

We added the power drain values for the Xeos and SeiDL controllers to Table 1. The operations both controllers perform are (i) to read SOH (state of health) data from the recorders and (ii) send SOH data as short burst data (SBD) over iridium as an email once per day. This is already stated in the text (Section 3).

Line 116/(table 1). What are the characteristics of the GPL31XT batteries that led the authors to choose them? What differentness them from other AGM batteries?

Our GPL31XT batteries have the standard advantages of AGM batteries. In the past, we used GPL31M batteries with 105 Ah. The GPL31XT batteries have the advantage that they provide 125 Ah at the same size and weight (~ 30 kg) as the GPL31M type. We've also chosen this battery type because it is still possible to be carried and handled by one person. We added this information now in Table 1 in the "Comment" column. Please note that the type names "GPL31XT" and "GPL31M " are the product names from the company "Lifeline".

Line 123: Quantify high wind. I have seen many "mechanically robust" pieces of equipment blown apart by wind.

We define "high winds" as wind speeds beyond the range where it is feasible to work outside (25-50 m/s). We added this number now in the text.

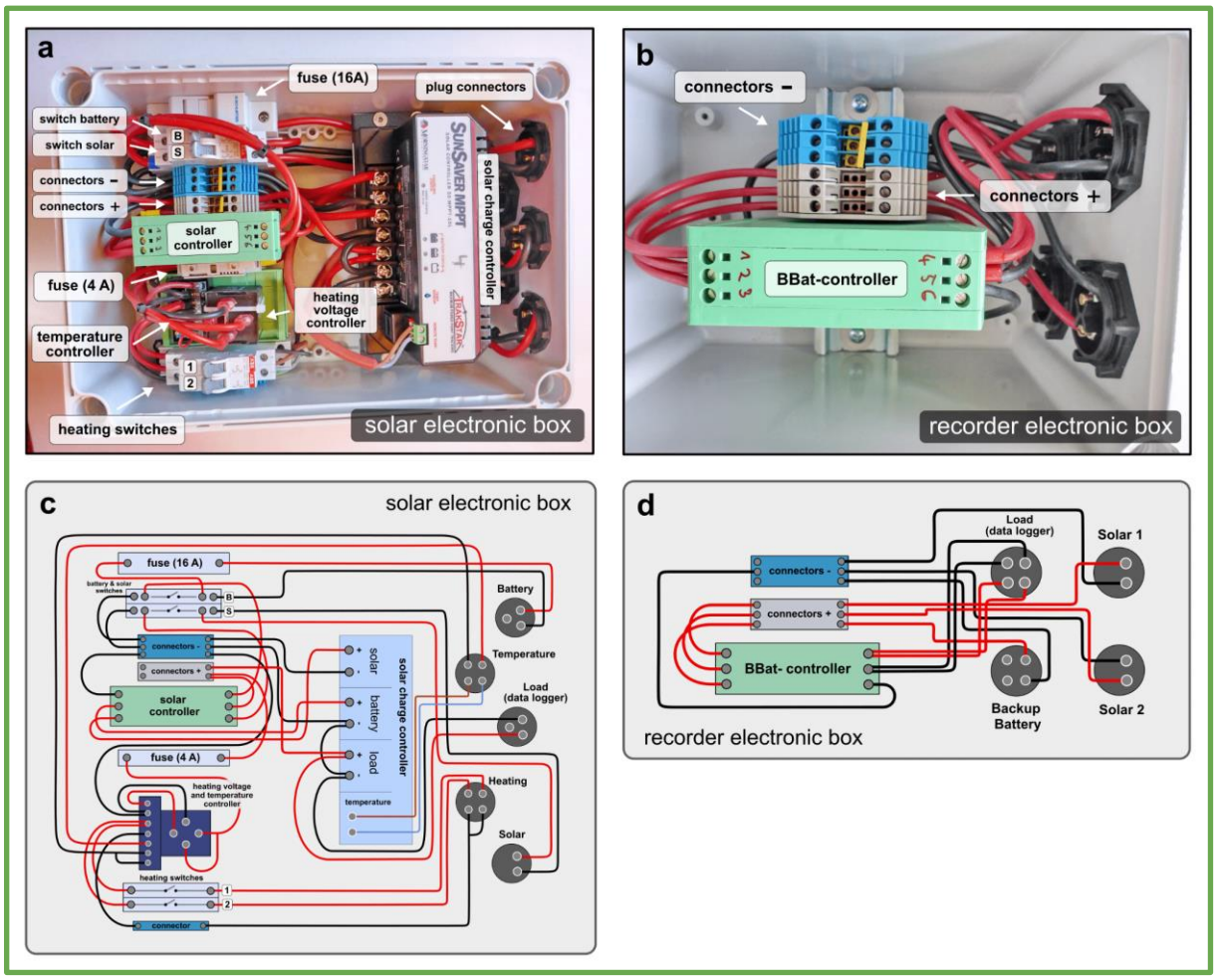
We have customized our wind generators to a large extent to deal with the strong winds in order to minimize the stress on the material: e.g. oversized E-brakes, shortened rotor blades and longer pauses between braking and restarting during storms.

Line 124: I think the authors mean “Pladur Panel Alveo” when they say “Alveo”. When I do a web search for “Alveo” this is the only company that appears to make panels. More details one the exact nature of the panels would be nice as well.

Yes, we agree that more detailed information is needed here. The material that we use is called “Alveobloc” and is produced by Sekisui Alveo. We use three different thicknesses 3, 5 and 10 cm to create insulation blocks of 8 and 10 cm, respectively. The Alveobloc material is available in different densities and we use a softer Type 3600 (28 kg/m^3) and a harder type 1700 (60 kg/m3). This additional information has now been added at the corresponding place in the text.

Section 3.1.1 and 3.2- I think more details are needed (wiring diagrams?) for these sections to be helpful to the reader or an engineer.

This is a very good suggestion. We now complement Figure 4 with two wiring diagrams for the solar electronic box and recorder electronic box.



Section 4.1.1: A reader unfamiliar with Antarctic seismology may think this has not been successfully implemented when in fact the use of Li batteries have been the power stations for numerous experiments support the PASSCAL instrument facility (this is briefly mentioned in section 4.4). Thus, I think a reference to Hansen et al., 2015 (where the use of Li Batteries is explicitly stated) is needed in this section.

We agree. We added the following sentence in Section 4.1.1:

"The concept of using Li-based batteries has already been successfully demonstrated in Antarctic campaigns with the PASSCAL instruments (e.g., Hansen et al., 2015)"

Section 4.1.2: More details are needed. I have talked to many people whom have had NO success with wind generators in Antarctica for various reasons (wind extremes, icing). If the authors are utilizing wind power successfully at VNA2 and VNA3 that is a great advance and I would like to know more! What are the temperature conditions? How much power is produced?

Many thanks for the interest. Of course, we have to admit that we have also experienced failures in terms of wind generator usage in Antarctica. However, our wind generators on VNA2 and VNA3 run mostly reliably and produce enough power (in fact, way too much) to ensure data recording through the winter most of the time.

We use helical horizontal axis wind turbines (HAWT). This wind generator type has already proven itself on the predecessor station of Neumayer III (Neumayer II), but in a larger version. We use the smallest version, which generates 300 Watt. The system is characterized by a very robust and simple generator and consists of three rotor blades. We have additionally shortened these to half their length to reduce the forces acting on the material (provides around 150 Watt). An advantage of these generators is that the bearings do not require regular oiling. On VNA3, the generator has run for 5 years without maintenance. However, we still see the potential for development in the control of the generator (for example, regulation in very strong winds). In addition, for our mobile stations, this type of generator is still oversized and very heavy. Here, a smaller wind generator with a horizontal rotor shaft would be more suitable.

The temperature at both VNA2 and VNA3 ranges from 0°C in summer to -50°C in winter with wind speeds up to 50 m/s.

The additional information about our wind generator types and experiences were now added to Section 4.1.2.