

Cryoseismic activity and dynamics of the Astrolabe Coastal Glacier, East Antarctica - The SEIS-ADELICE project (2020-2025)

G. Barruol et al.,

Response to reviewers letter

Dear Guilhem Barruol, Tifenn Le bris, Dimitri Zigone, Florent Gimbert, Emmanuel Le Meur, Anuar Togaibekov, Denis Lombardi, Alessia Maggi, Maxime Bès de Berc, Armelle Bernard, Lisa Operto, Romuald Daniel, Tom Dumouch, Simon Besançon, Wayne Crawford, Aurélien Mordret:

I hope this email finds you well. I have reached a decision regarding your submission to Seismica, "Cryoseismic activity and dynamics of the Astrolabe Coastal Glacier, East Antarctica - The SEIS-ADELICE project (2020-2025)". Thank you once again for submitting your work to Seismica.

Based on reviews I have received, your manuscript may be suitable for publication after some revisions. I particularly agree with both reviewers' comments about the framing/context of the article and the presented dataset vs the project, especially in the Introduction section. I also agree that some aspects could be written more concisely. I agree with all the reviewers' comments - please make sure you respond to them and make changes, where appropriate. Note that some of Reviewer B's writing may not be entirely unclear, so please don't hesitate to contact me if there is anything you are unsure about.

When you are ready to resubmit the revised version of your manuscript, please upload:

- A 'cleaned' version of the revised manuscript, without any markup/changes highlighted.
- A pdf version of the revised manuscript clearly highlighting changes/markup/edits.
- A 'response-to-reviewers' letter that shows your response to each of the reviewers' points, together with a summary of the resulting changes made to the manuscript.

Once I have read your revised manuscript and rebuttal, I will then decide whether the manuscript either needs to be sent to reviewers again, requires further minor changes, or can be accepted.

If you deem it appropriate, please check that the revised version of your manuscript recognises the work of the reviewers in the Acknowledgements section.

Please note that Seismica does not have any strict deadlines for submitting revisions, but naturally, it is likely to be in your best interest to submit these fairly promptly, and please let me know of any expected delays.

I wish you the best with working on the revisions. Please don't hesitate to contact me with any questions or comments about your submission, or if you have any feedback about your experience with Seismica.

Kind regards,

Stephen Hicks

Reviewer A:

Summary:

The manuscript provides a very detailed description of a seismic deployment at an Antarctic outlet glacier and provides some initial interesting observations that hint at a wealth of interesting seismic signals in the datasets. Given the title, I had expected the balance to fall the other way,

with a succinct description of the deployment and a more detailed exploration of the recorded data. I think this work would suit Seismica as a dataset paper, but I'd suggest revising the title to communicate that. I also found the paper rather heavy to read. I think it would really benefit from being a little more concise. For example, the description on orienting seismic sensors is longer than the section on stick slip seismicity. I think if the authors make the paper more concise, and perhaps add a little more detail on the data analysis rather than the deployment practicalities, then this paper would make a useful contribution to Seismica and would be of interest to the wider community.

Thank you for all these comments. We recognise that the title has to focus more on the experiment than the project itself and made the change accordingly.

With regard to readability and concision, we have tried to reduce the text in many places. In particular, the section concerning the power management has been transferred to the Supplementary material. However, the general idea is that this paper is intended as a report on a seismic experiment, providing information on deployments and noise levels, as well as some data examples. The paper is aimed particularly at future users of the data and people performing field experiments in Antarctica. We have structured the paper so that technical sections can easily be skipped if they are not of interest for the reader.

Figures: taking into account the comments of the two reviewers (and particularly the annotated manuscript), all the figures have been redrawn to make them clearer, more readable.

Major comments:

There is generally a lot of detail on the deployment. The paper to a large extent feels quite like a review of glacier seismic deployment rather than a review of activity. I don't really have a problem with this, as it is useful, but the title is perhaps a little broad in scope.

As mentioned above, this paper is intended as a report or dataset, rather than a scientific paper. It contains a large amount of technical information that we are happy to share with the community.

The paper could really benefit from being concise. I like the level of detail in some ways, but overall it becomes quite a dense paper to read and the new insights are hard to extract. I can definitely see novelty, but I'd recommend that the text is made more concise so that readers don't have to hunt for the key findings. It also feels like a lot has been crammed into the paper. I think it can fit into Seismica as a dataset paper, but still needs to be made more accessible somehow by reducing length.

We agree and have tried to reduce the text in each section to make it more concise and more easy to read.

I'd also have liked to see some suggestions of interesting avenues for future research. I'm sure the authors are pursuing such avenues, but it would be nice to get excited by hints at what exciting findings may come out of this exciting dataset going forward.

When presenting examples of data, our aim is to give readers an idea of the quality of the data, as well as potential research directions. We now explicitly state in the text when a piece of research has been completed or is just beginning, providing such an avenue for future research.

Minor comments:

L71: The IPCC report should be cited correctly. Ideally as the relevant chapter. Guidance on citing like a standard paper is provided at the beginning of each chapter of the report, with a DOI etc.

We agreed and changed the citation.

L73-75: Can the authors briefly back up their statement with why it is crucial to monitor the basal melting of the floating ice shelves specifically? (e.g. basal melting of floating ice shelves can destabilise ice shelves that act as buttresses, as well as facilitate more warm water to grounding line, which promotes grounding line retreat and hence sea-level rise). Currently, the implication by the authors is that the melting of floating ice shelves contributes to sea level rise, which it doesn't as they already have displaced the water.

We have extensively revised the introduction to make the process clearer. Of course, at any given moment, the ice floating on the ocean will not cause the sea level to rise. In the long term, however, basal melting may cause the glacier to retreat, destabilise the ice upstream and speed up the flow of ice towards the ocean. As soon as the flow of ice towards the ocean increases, this will cause sea levels to rise.

L89: tenths of metres? I'd typically say that it can reach tens to metres of resolution, but not smaller unless at very high frequencies (>1000 Hz).

Of course, it was a mistake between tens and tenths. We change to tens.

Figure 1 – inset schematic is a little small. Could it be made bigger or font size increased? Also, Figure 1b needs a legend.

Figure 1 (and all the others) has been significantly modified to improve readability: the cartoon is larger, the font size has increased, colour codes are more consistent, and scales and information are more visible.

L264: URLs in the text are against Seismica citing policy? Is it even needed? Just specify the type of instrument and key characteristics (e.g. sampling rate, bandwidth etc).

We have removed all the URLs from the text, but keep some in the acknowledgements and in the data section. Some links may be indeed informative for the reader.

L303: How many nodes were deployed? How dense? Please explicitly quantify.

We provide information on the number of instruments and the interstation distance for each node deployment in section 3.4. The full details of the deployment are also provided in the supplementary Tables.

L317: Remove this URL. Readers don't need to be told how close Antarctica is to the magnetic south pole.

We removed this information from the paper.

Section 3.4.1: Just a small comment for the authors, no need to address in this manuscript. But for future deployments, there is a much easier way to align sensors with geographic north. Just take a GPS and a pole, and walk 50 m north according to the GPS. That should get you within 2-3 degree accuracy, which is the best you could hope for when burying an instrument.

As explained in the text, we sometimes used the GPS to orient the instrument, but this method does not appear to be applicable to the crevassed areas of the glacier for safety reasons. Walking 50 m in a given direction is sometimes impossible!

L339: Again, remove the URL. There is generally too much detail here. Makes the paper hard to read.

We removed this URL.

Figure 6 – Is there a better way to communicate what this figure shows? Perhaps a plot of standard deviation at lower vs higher frequencies with distance from the grounding line? The reader has to do a lot of interpretation themselves currently. Also, please label whether the instruments are on floating ice or grounded ice.

The figure 6 (now fig. 5) shows the progressive appearance of the 16 s energy peak on the PSD, from grounded to floating ice. Modifications have been made to highlight the floating and grounded ice, as well as to draw attention to this spectral bump by adding a red rectangle to the relevant part of the spectrum.

In order to avoid making the text too lengthy, we have chosen to simply present here the evidence provided by the data. As explained in the text, this finding is new and will require further investigation, which will be the subject of a dedicated paper.

Figure 7 – (a) needs units and a more descriptive colour bar label. (c) why is there a tap test photo covering the data? And all the labels are too small. There's an interesting trend in (b) but it's kind of hidden by what I would describe as fairly irrelevant information in the other parts of the figure (which really just tell us about fibre performance). Are those tap tests really interesting? I'd remove them as I don't think they add much, at least in their current form.

Fig. 7 (now Fig. 6) has been redrawn and reorganised to provide a clearer message and larger fonts, particularly for the local events detected from the DAS (Fig. 6d). Amplitudes are specified in the legend. The tap test photo illustrates what a tap test looks like in the field, which may not be obvious to some readers. The objectives of the tap tests were to characterise the ice thickness and seismic wave velocities, as well as the signal quality at the seismic nodes and along the fibre. We kept the example of tap-test made on the fibre and at the nodes to illustrate the overall recording quality. As explained in the text, DAS data are currently under analysis, so we cannot provide definitive answers to these questions at this time.

L600: Figure 9 doesn't really illustrate the process of icequake detection but rather the characteristics of the signals. This is fine, just revise the wording in the text.

Fig. 9 (now Fig. 8) has also be redrawn and changes have been made to correct the text accordingly.

Figure 9: How is the tidal amplitude obtained? Need to state in the caption. Also, in (b) I'm not entirely convinced those are stick-slip events. Evidence of the presence of an S-wave would help a lot. Could the authors plot all three components to show that the first arrivals are P waves and the others S? Also, is the plot with lots of red lines indicating all stick slip detections? Can the authors be confident that every detection is a stick-slip event without some other information?

As explained in the text, the tide amplitudes presented in Fig. 9 (now Fig. 8d) were obtained from direct ocean measurements provided by the tide gauge operating in DDU. These data are available online (see the 'Data' section).

This is made explicit in the text, the caption and the data section.

Section 5.4: The correlation functions suggest quite a strong directionality. This is to be expected, but perhaps the authors could speculate a little on how that will affect any analysis of glacier structure from the data.

We made changes in the text, to clarify that for surface waves, the directionality is rather small and may generate only small biases and to indicate that the SNR is high enough to constrain phase dispersion measurements.

Recommendation: Revisions Required

Reviewer B:

The paper introduces a valuable cryoseismological dataset and showcases its potential applications. The paper follows is well structured and written with good English. I found it nice how quastiong arising during reading are immedietely addressed. Despite being generally good quality it contains several flaws that shuold be addressed. Therefore, I recommend a minor revision.

Thanks for these encouraging comments.

The general remarks are provided here, while the detailed ones are annotated in the manuscript. Some general remarks may be repeated in the annotated pdf. General remarks:

1.Introduction: paper vs project. Please make it clear what is the project and what is the paper. It is misleading, especially in the introduction, when information about project is given. Reader is confused not knowing if aims of the project are consistent with aims of the paper, if mentioned results are to be achieved or maybe were achieved and published elsewhere already. This should be clear, and the scope should be given to the paper which is fully independent from project from readers' point of view.

We agree that the term 'project' has been misused in the title and throughout the text. We prefer the term 'experiment', as this is the paper's actual purpose. We largely rewrote the introduction and clarified that the paper's objective is to present the experiment, the data noise levels, and some examples of use.

2. Figures - in general figures are not meeting highest publication-quality standards. Problems come with proper labelling, tiny, inconsistent fonts, etc. Special care should be given to maps, as these are poorly legible and not transparent. Improved maps would greatly increase the quality of the paper.

All the figures have been redrawn to reach the publication-quality standard: these include font size and colors, labeling, scales. They can be all provided in .ai format for best resolution.

3. The analysis of icequakes and stick slips events should be explained better (or referenced better). The crosstalk and overlap with Le Bris paper(s) should be resolved.

The text has been modified to make it as clear as possible regarding these icequakes and stick-slip analyses. The analysis of icequakes has indeed already been the subject of a dedicated paper (Le Bris et al., 2025), which is clearly stated. The aim of the present paper is therefore to provide some new examples that illustrate the quality of the data and how icequakes are detected. Stick-slip analysis is the subject of a separate paper which is currently under review (under open discussion to The Cryosphere in December 2025, the doi is provided). Here, we have chosen to present an original example of the data without delving into their mechanical interpretation. We have added the proper reference to the paper, which is available online and open to discussion.

4. Omitted value of this paper is a great practical field guide on the seismic instrument installation and maintenance. This should be highlighted, mentioned in motivation, etc.

Thank you for this comment, as it is at the heart of this paper, which is dedicated to presenting a field experiment, the quality of the data, and some potential applications.

We indeed wrote this paper to share information that we wished we had found before starting our project on the Astrolabe Glacier. We hope it will be useful for future deployments and encourage our colleagues to look at the data.

5. Conclusions - conclusion do not mirror the content of the paper. This part should be thoroughly rewritten focusing on the conclusions and outlooks coming directly from the described results.

We completely agree with this point and deeply rewrote the conclusion in order to better reflect the paper content.

6. The availability of short term arrays data should be provided.

We have added the missing information to the data section. Distributing and sharing data is a time-consuming operation, particularly for nodes and DAS data, which generate large volumes of data, and these operations are not yet finished. The node data are not yet online, but they should

be available at RESIF with the same FDSN code as the broadband stations in the next few months. However, we clearly state that the data can already be provided on request.

Recommendation: Revisions Required

Comments from the annotated manuscript

In order to be complete with the reviewer comments, we listed below the major comments found in the annotated manuscript and provide our related answers.

NB: All the “small” comments from the annotated manuscript that are not listed below (typos, reference, small suggestions, rewording, awkward sentence, ...) have been considered and taken into account in the revised version of the manuscript.

Abstract: maybe add information about preliminary conclusions/findings that come from the analysis

The abstract has been deeply rewritten to integrate better the objectives of the paper but also the preliminary conclusions.

L107 semi-permanent - what does it mean? meaning long-term?

We made appropriate modifications in the text to clarify the meaning of long-term (multi years) and temporary (multi-weeks) instrumental deployments.

Fig1: tongue is used interchangeably with ice shelf - please try to unify it, or explain if it the same or there is a difference. It may help readers that are not familiar to Antarctic terminology.

For clarity, we adopt the terminology of floating tongue throughout the paper, which better represents the reality of the Astrolabe Glacier.

L175: please comment if in other sites you had any problem with melting out

In the text, we clarify that stations on stable ice were not affected by surface melting, and that one of the stations on the glacier's GZ (AST05) experienced significant tilt due to melting. We also note that some melting around seismic nodes generated some tilt, but this did not impede the successful use of the data.

L198: seems this is an accelerometer. Please indicate what is the measured unit of each type of instrument used.

The Trillium 120 sensors are velocimeters, not accelerometers, this is clarified in the text.

L203: was it screwed to the rock or just placed on top?

As explained in the text, the sensor was just sitting on the rock but its protective box was firmly screwed on the rock, with layers of foams at the base to make the protective system as efficient as possible to reduce the effect of external atmospheric pressure variations.

L252: any thoughts why voltage went lower then in other station?

As proposed in the text (now in Supplementary material), one possibility is that in 2024, the AST02 station was running with older batteries than AST13, installed later.

L279: how small? please indicate what kind of boat, was the crane used? or you did it without using the crane?

We clarify in the text the information about the sort of boat used (we used a 10m-long barge equipped with a small crane or the logistical vessel L'Astrolabe).

L327: This is surprising. tell with words that this is the first method.

We made the text modification to better present the first method (sighting toward a ground reference point) and the second method (sighting toward the sun).

L378: tell why

The explanation of the data availability and the difference between the two fibres is related to weather conditions that impacted their dates of deployment.

L388: also drilled in shallow boreholes? if so, please tell or state it was not

Yes, the 2025 nodes were also installed in shallow drilled boreholes. This is clarified in the text for the three successive node deployments.

L449: include in Supplement

As suggested by the reviewer, we have added a new figure (Suppl. Fig. S2) to the electronic supplement to show the power spectral density (PSD) of the three components of the three broadband stations, that focus on the vertical component in Fig. 5b (now Fig. 4b). This provides the reader a useful overview of the horizontal components, which are slightly noisier than the vertical component on stable ice (AST02). It also shows that the 16- and 50-second energy

peaks on the horizontal components are still visible but less pronounced at the floating stations (AST04 and AST07) than on the vertical component.

L477: are PPSDs consistent among same type of OBS or vary spatially?

The answer to the question is present in the text: we chose to show on Fig. 5d (now Fig. 4d) the PPSD of 2 OBS of the same type and recording during the same period to show difference in PPSD, despite their proximity (400m), suggesting a strong influence of local coupling with the sea bed. We have however modified the text to be more explicit.

L499: what about the yellow stations?

that deployment crosses the GL so this effect can be examined further. Does that data show the same behavior?

As explained in the text, the 16-second energy peak is prevalent at all stations installed on the floating part of the glacier. In the present paper, we demonstrate this property using data from the broadband stations deployed in 2022 and the nodes deployed in 2025. We also explicitly state that the same signature is present in the 2023 and 2024 node deployments. While this topic certainly merits further analysis, this is beyond the scope of the present paper. Here, we have indeed chosen to highlight interesting facts revealed by the data rather than delving into their scientific exploitation, that would require much longer investigation and that could desequilibrate the paper from its initial scientific and length objectives.

L525: please add some ref for this method. did you apply any frequency filtration?

Reference is made to Allen (1978) for the STA/LTA method and we explain that the same frequency band as Le Bris 2025 was used for the DAS.

L530: I got sense of this only after reading the Fig 7 caption once again. Please make this more clear.

Still it is not clear to me if there is 10 in total, or 10 per 250 m section of the fibre. Also: the hammer shot signal propagates 45 m away from the source at the surface placed directly on the fibre. Icequakes - supposing these are the detected events - are expected to be weak events.

Given the above, why icequakes are expected to be well recorded on the distant channels (I suppose it is 10 channels per 250, randomly distributed). It would make more sense to take few consecutive channels and then combine the STA/LTA trace - to cope with the noise saturated channels presented in fig 7a.

The new Fig. 6d has considered this constructive comment: the STA/LTA detection now has been performed on all the channels of the fibre and then averaged over 500 m-long segments. To be clear, the events recorded on one side of the fibre are likely not the same as on the other side of the fibre.

L535: From my experience DAS laid on surface of ice is greatly exposed to wind generated noise, wind-gust may be triggered using simple STA/LTa.

Therefore, it is important to tell if STALTA included frequency filtration. You should at least look at the wind data to verify if the triggered events are coinciding with elevated wind periods.

Wind-gust triggering: The data are filtered during the STA/LTA detection process using a 5–40 Hz bandpass filter. While wind noise can be present within this frequency range, wind gusts are not impulsive enough to trigger detection with the chosen parameters (the signal must indeed increase abruptly within 0.5 seconds after a period of low noise to trigger detection).

Wind-induced noise: We have indeed observed that wind can impact the quality of the overall icequake detection. During storms, we often observed a much lower level of detection, which is explained by high ambient noise levels generating high LTAs in the data and therefore requiring extremely high STAs to reach a given detection threshold. We noted this effect in the text and focus our investigations during low-wind periods for better reliability.

I understand the cyclic appearance of events may suggest icequakes related to stress caused by tidal uplift, but in my opinion the conclusion here is premature. Please indicate icequakes as possible source, that would follow the discussion of wind conditionsa.

I suggest to either refrain from calling them icequakes or to present evidence for that, e.g., examples of events, frequency spectra etc.

With regard to the detection of icequakes from DAS data, we fully understand the comments from Reviewer B regarding the premature presentation of results in relation to the later presentation of icequake detection in the paper. We have therefore moved this section on DAS icequake detection to section 5.2, where it is much more consistent. We also keep the interpretation of icequake bursts open to further investigation, particularly in view of the wind effect.

We present as an hypothesis the term 'icequakes' to describe events recorded by DAS, as the waveforms, durations and pervasiveness are similar to those observed at closeby seismic stations. In this section, we however acknowledge that further constraints would be useful for better characterising the origin and dynamics of these events.

L546: Several were promised but only two were given.

This point should be more thoroughly discussed (or shortly, and properly referenced). Discussion should include sensor installation (buried geophone vs surface fibre?), different components being analyzed (probably vertical geophone ground velocity vs axial strain).

Converting strain to velocity alone does not make the record fully comparable (as you mentioned). There are papers analysing and explaining this phenomenon.

See Fichtner et al 2025, fibre optic exploration in the arctic, or maybe <https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1002/9781394179275.ch6>, or

another paper discussing the different response of DAS vs geophone due to recording different phenomena

The corresponding paragraph has been deeply rewritten to emphasize the possibility of the effect of the presence of melt and coupling difference between the surface cable and the deeper buried seismic node. We also add reference to another experiment where the fibre was put in a digged trench, providing better correlation between the two signals.

L593: general comment to icequakes.

first premature and incomplete analysis of some detections is given as "icequake analysis" on DAS data. Then icequakes are introduced (impulsive events etc) and analysed again, more thoroughly.

There is no sense to provide that first DAS icequake analysis separately much earlier. Please combine those two into one icequakes-focused section.

As explained above, the example of icequake detection from DAS has been moved in section 5.2 at the end of the icequake detection section. This appears much more consistent since detection technique and references are then defined.

L595: reference needed. mind stick-slip events are also type of basal icequake.

References have been added for both icequakes and stick-slip events. However, we have kept the presentation of icequakes, which we relate to surface brittle deformation, separate from the presentation of stick-slip events, which are accepted to occur at the ice-bedrock interface.

L597: 'this' activity refers to which activity? icequakes? icequakes at the same place?

Please indicate if the data described here was used by Le Bris or if they used some other dataset.

When we talk about icequake activity, it is more precisely related to the icequake occurrence.

In her 2025 paper, Le Bris used the broadband stations, some OBS stations and the 2023 node array. Icequakes have been also detected from the 2024 and 2025 nodes and are presented in her thesis but in the present paper, we took the example of nodes deployed in 2023, but the Fig.9 (now fig. 8) is original.

L613: make clear distinction between what is shown as new results and interpreted from the provided figures and what is described in Le Bris 2025 and referenced.

Restrict doubling content of Le Bris 2025 to only strictly necessary parts.

The objective of Fig. 8 is not to double the content of Le Bris (2025), but rather to provide the reader with few examples of data and demonstrate the types of signals they contain and how they can be used.

L631: depends on the distance to receiver and magnitude. Seems you want to say that in analysed dataset this is the case, which will not always be true.

That's right; we observe much smaller amplitudes for stick-slip events than for icequakes at the surface. However, the latter originate closer to the sensors, while the former are generated at the glacier base, i.e. at a greater distance. We therefore make the necessary modifications to the text.

L632: include phase description for icequakes as well

We made the requested modification by including a similar description of the seismic signals for icequakes and stick-slips.

L638: are any measures taken to exclude stick slip events from icequakes statistics?

To make this point explicit, we add a short explanatory sentence to the text stating that icequakes and stick-slips cannot be misinterpreted during their respective detection methods due to the characteristics of the signals, such as amplitude, duration and waveform. In addition, we cross-checked the catalogues of icequakes and stick slips to make sure there is no mixing.

L650: not published refs are not allowed

Either provide more evidence for this phenomenon in this paper or limit the conclusions

The paper is indeed in review at The Cryosphere but has a DOI and is available online for the discussion.

L666: Give a general remark what was your modification about.

We added this information in the text: the modifications mostly implied shorter time windows to improve transient rejection.

L677: the causal and acausal parts share some features (same surface waves) but differ in P wave presence and in general in amplitude.

Saying "are not perfectly symmetrical" is in general correct - but there is surely a better phrasing available.

We added a sentence to clarify this point.

L709: you may surely find a more suitable reference at this process is studied for decades. referenced paper focused on underwater DAS so it does not relate well to your setup.

We added other references related to calving-induced seismic noise.

L713: Can be recorded in future or can be already among the recorded data? This or other dataset?

We suggest these kind of signal already exists in the present dataset and can be studied.

L714: I don't find the flow here to be logical.

Seismic instruments record antropogenic noise everywhere. Other sites are noisy exactly due to this noise.

Fichtner recorded aircraft in Greenland if I remember correctly.

We all know what you mean, but please be specific and reconstruct the sentence.

The sentence has been modified. Antarctica is an interesting place to decipher seismic signals due to the overall low anthropogenic noise. The point here is not to suggest that anthropogenic noise sources are dominated by aircrafts, but rather to show an example of a clear signal that is well recorded in the field by seismic sensors and that could potentially be misinterpreted in terms of its origin.

L719: can you explain relation between 20Hz and 400 RPM?

The information has been clarified in the text to be more explicit: $400 \text{ rotation} \times 3 \text{ blades}/60\text{s} = 20 \text{ blades/s} = 20 \text{ Hz signal}$.

L731: I would like to make a general remark about the project. We do not know the complete project description as it is not provided here in detail. Therefore, we can't evaluate such a statement, as the success is surely measured regarding the aims of the project. I would like to ask to refer more towards the work described here rather than to the 'project'.

Secondly, I don't agree that what is shown here is a monitoring of cryoseismic activity over several years. Authors themselves state that they introduce the dataset and showcase potential applications. Please be consistent with the introduction and the body of the paper (results).

The conclusion of the paper has been deeply reconsidered and rewritten to better reflect the content of the present paper, particularly the field experiment and its associated technical challenges, the noise levels, and the potential use of the data.

L743 - Conclusions - This relates to the position of DDU, not to the content of the paper.

Please include conclusions of preliminary analysis of the data. A result worth of highlighting is in my opinion a characteristic of noise when closing to GL.

Also include that this paper provides description of good practices how to install and maintain seismic network in such conditions for longer time.

We removed the information about the proximity of the Astrolabe Glacier to DDU, but kept the information about the processes that are independent of glacier size, highlighting the specific interest in studying this type of outlet glacier to improve our understanding of the underlying processes.

We also included information on the noise characteristics of the different instruments and environments, as well as the technical practices that form the backbone of the paper.

L785: only AST.. stations are findable via this link.

What about all the other data from short term deployments?

As mentioned above, the process of distributing and archiving seismic data can be time-consuming. While all broadband stations data are already online, nodes and DAS data are still in the process of preparation to be distributed. This should be completed within the next few months. Therefore, we indicate in the text that the data are available on request.