

We thank the reviewer for his/her work and constructive comments! The referee's comments are copied below, and our responses are written in red below each comment.

Interactive comment on

“Towards the Marine Arctic Component of the Pan-Eurasian Experiment”

By Timo Vihma et al.

Anonymous Referee #2

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The manuscript by Vihma et al. describes a marine Arctic component (MA-PEEX) as supplement to the existing terrestrial/atmospheric the Pan-Eurasian Experiment (PEEX) and coastal the SMEAR (Station Measuring Ecosystem-Atmosphere Relations) concepts. The authors' main selling point is that they are going to investigate the behavior of the physical and biogeochemical processes to improve the ocean component of an Arctic observing system based on the marine meteorological, sea ice, and oceanographic observations for the Arctic Ocean itself. In the same time, the SMEAR concept can be applied in coastal and archipelago stations, such as Tiksi, Cape Baranova, etc. The topic of the study is highly interesting and has potential. I also think that the exercise has an obvious practical value. However, I have concerns about the manuscript.

In my view, this document is more like a proposal or 'letter of intent' rather than usual research paper. Ultimately, this is an editorial decision, but the topic appears more appropriate for another journal than ACP. For example, I used to see such papers in Bull. Amer. Meteorol. Society (BAMS).

We agree that the document is not a usual research paper. BAMS would have indeed been an alternative publication forum, but we selected ACP because of its PEEX special issue.

In my opinion, the manuscript in the current form is quite bulky, poorly composed, has repetitions, rough, and not easy to follow. There are too many abbreviations in the paper. It sometimes is overwhelming for the readers. Some are not necessary, please refrain from using abbreviations unless unavoidable. Apparently, this is due to the fact that the manuscript is a compilation of different parts prepared by different contributors.

Because their result implies something important, I don't think the paper should be rejected. I recommend the authors try to improve the paper in a major revision. I think that the authors should consider reworking the manuscript completely; the paper should be re-elaborated in depth, reduced in size, and be re-written by one co-author in a coherent manner before re-submission.

We have reduced the length of the paper by 36% (from Introduction until the end of present Section 5), and strongly reduced the use of abbreviations. We have also removed a lot of repetition and, to make the approach and writing style more coherent throughout the document, the lead author has alone prepared the revised manuscript, and then collected final input and comments from co-

authors. Structural changes include removal of previous Section 2, as the core issues of the Arctic climate system are now presented in Section 1 (Introduction) and in the present Section 2 (Existing observations and processes to be studied). Further, a lot of detailed information on new observation methods and community-based observations have been moved to appendices, and the previous Sections 6 (Way forward) and 7 (Discussion) have been merged together into the new Section 5 (Discussion: The way forward) to make the message more clear and compact.

Either way, my specific comments for a future version are listed below. This is by no means a complete list.

Page 5, line 2. Degree sign for 70 N should be superscript.

Corrected.

Page 5, line 31. Define 'PP' (twice).

We no more use the abbreviation, but write it out (primary production).

Page 20, lines 5 and 7. Introduce the abbreviation 'ECDA3' on first occurrence.

Defined.

Page 20, line 28 and page 21, line 17. Abbreviation 'LNG' is not defined.

Defined.

Page 20, line 30. Replace 'Krai' by 'Region' similar to 'Magadan Region' in this line.

Replaced.

Page 21, lines 2, 4, 5, 7. Replace 'Oblast' and 'Krai' by 'Region' similar to 'Magadan Region' on page 20, line 30.

Replaced.

Page 21, line 21. Replace 'Sakhalin' by 'Sakhalin Island'.

Sentence removed.

Page 22, line 28. There is no 'Sakhalin Sea' in the nature. Do you mean 'Sakhalin Gulf'?

Yes, we meant, but the sentence is now removed to shorten the text.

Figure 4. I believe that the labels on the map should be in English and not in Russian.

We have removed the previous Figure 4. (There is a new Figure 7, with labels in English).

Timo Vihma on behalf of all co-authors.