

Editor Decision: Publish subject to minor revisions (review by editor) (08 Aug 2021) by Allan Bertram

Comments to the Author:

Dear authors,

Thank you for carefully considering the referee's comments and significantly improving their manuscript based on the referee's comments! I think all the modifications and responses are adequate, except for the response to the first main comment raised by Referee 2. Below I restate the referee's comment and suggest changes to further address the referee's comment.

Main comment:

"... It needs to be highlighted in the abstract and conclusion that results are preliminary because of the small sample size. Findings in the abstract and conclusion should be limited to the strong signals that are expected to be reproducible in future investigations. For less clear results it should be stressed that more observations are needed. The limitations of the applied analysis due to the size of the available dataset should be stated clearly in each section. ...

In response to the main comment above, I think the authors have done a reasonable job of discussing the limitation of the applied analysis in Section 3 (Results) and Section 4 (Discussion). However, the limitations of the applied analysis are not acknowledged well in the Abstract or Conclusions, especially when discussing the sources of the INPs. Please edit the Abstract and Conclusion so that the limitations of the analysis for source identification are included in the Abstract and Conclusions and/or weaken the statements in the Abstract and Conclusions regarding the source of the INPs so that the Abstract and Conclusions are more consistent with Section 3 and 4. If you can make these changes, I think you will have adequately addressed all the referee's comments.

Sincerely,

Allan

Answer

We sincerely thank the Editor for appreciating our efforts to improve the manuscript and for this last suggestion. We have modified Abstract and Conclusions adding the requested considerations.

The abstract now reports the following sentence:

"Our spatiotemporal analyses of satellite retrieved Chlorophyll-a, as well as spatial source attribution, indicate that the maritime INPs at GVB may come from the seawaters surrounding the Svalbard archipelago and/or in proximity to Greenland and Iceland during the observation period. Nevertheless, further analyses, performed on larger datasets, would be necessary to reach firmer and more general conclusions".

The Conclusion Section now includes the following:

"Our summer-season analysis also suggests a relationship between the biological activity in specific seawater regions and  $n$ INP at the sampling point. Nevertheless, we evidence that this result was achieved with a limited number of observations and that further studies, based on larger datasets, would be desirable for a better understanding of marine sources of INPs over the Arctic".