The Cryosphere Discuss.,
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The Cryosphere
Discussions

Interactive comment on "Satellite ice extent, sea surface temperature, and atmospheric methane trends in the Barents and Kara seas" *by* Ira Leifer et al.

J. Hutchings (Editor)

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Dear Dr. Leifer and co-authors,

We have received two reviews of your manuscript and based on these I can not recommend this paper is published. There are two fundamental issues in the interpretation your your results. Namely that the SST increase is not necessarily related to increased upwelling and that your calculation and consideration of albedo is not correct. In my reading of the manuscript I came to the same conclusion about the results related to changing sea ice conditions, and believe you have not considered the role of time in solar warming the upper ocean.

The reviewers have given advice on how to stream line the paper and make it suitable for publication. The methane analysis by itself may be of interest for publication. Given the inherent problems in the study in finding a link to sea ice or physical oceanography I do not believe The Cryosphere is a suitable journal for that study. You may reconsider your methodology, of course, and with new data or analysis methods be able to find linkages of the atmospheric methane to more distance ocean floor sources, and I would welcome a discussion on a paper documenting that in the future.

You are welcome to continue with the process of responding to reviews and revising your paper. Please do take into consideration the major nature of the criticism, however. At the stage I feel it is unlikely this study is publishable in it's present form, and it would be a very different paper should you address the key problems in your study.

Please do consider publishing the methane work, and I do hope that the reviews help you refine your methods to better understand the role of the ocean in the observed atmospheric hotspots. With very best regards, Jenny

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