

Interactive comment on “What historical landfast ice observations tell us about projected ice conditions in Arctic Archipelagoes and marginal seas under anthropogenic forcing” by Frédéric Laliberté et al.

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We thank very much David Bailey for his helpful review. We have tried to implement as much of his concerns as possible while keeping the thread of the manuscript as close to original as possible.

His main concerns: 1. We were worried about this as well and this is why we've used as many data sources as possible. The only thing we have not included is an analysis of sea ice velocities using ice floes tracking from satellites images. While this could

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have been done, it is our impression that it would have been out-of-scope for this study as these tracking analyses are not yet available over the time and spatial scale we sought. This will probably have to be the focus of a follow-up study. 2. We have fixed the figure and kept only one percentile range. We agree with the reviewer that the figure looks much better now. 3. We have removed some panels from these figures to make them easier to read. We have decided not to further split the figures between CAA / Laptev as we already had limited our sector to this region as much as possible. Since the goal of this study was to present the CAA slow, packed ice in the Arctic context it is our impression that keeping these sectors as one is probably easier for the reader. 4. See point 3 5. We have decided against following the reviewer's advice here and we have not included a trend analysis. The main reason is because the message of this figure is that the trend will depend on the number of months of slow, packed ice and is therefore probably a quite sensitive measure of change. In particular, we note a change in trend for slow, packed ice durations around 5 months, a duration for which the trend is essentially 0. Finally, figure 6b shows a rapid change of behaviour in the last decade over the Northwest Passage which could never be captured with any meaningful measure of trend. It is our impression that in such a situation it is probably better to have the reader cry out for a trend analysis (like the reviewer did) instead of providing a trend analysis that has little statistical significance. 6. We have fixed this grammatical error and we have expanded on the Lemieux et al. parameters.

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