

## REVIEWERS' COMMENTS and ANSWERS

### Reviewer #2

#### Summary

This manuscript investigates how seasonal shifts in sea-ice concentration and vertical density stratification regulate current speed and shear across the Laptev and East Siberian seas. The authors present an extensive mooring data set and deliver a largely qualitative interpretation of upper-ocean variability, highlighting the summertime prominence of near-inertial currents. Although the analysis is descriptive rather than quantitative, the topic is important and the observations are valuable for understanding ongoing Atlantification of the Siberian Arctic.

#### Major Comments

**Q1:** Several points require attention. Methodology needs greater transparency: lines 76–94 and 95–99 list instruments and programs, yet direct links or citations to the underlying mooring, sea-ice and wind datasets appear only later in the Data-Availability statement, which can be confusing. The ERA5 winds should be referenced in full (e.g. Hersbach et al. 2023, DOI 10.24381/cds.adbb2d47) rather than cited only by a portal link.

**A:** [We added requested information to the text. Thank you.](#)

**Q2:** The procedure described in lines 119–133 is understandable in outline, but additional detail is essential. There are no citations to the earlier works of Pnyushkov & Polyakov (2012) or Baumann et al. (2020, 2022); one must therefore assume previous approaches relied on Fourier transforms, whereas the present study may be using a wavelet-style filter to isolate the 12–14 h signal band. It is unclear what the declared “2-day window for NIC detection” actually means, given that NICs are already obtained through band-pass filtering. The 2012 paper referenced does not discuss spectral or frequency analysis, only time- and space-normalised diagnostics, so perhaps the authors intended the sliding-window harmonic analysis introduced in the Arctic Tidal Current Atlas by Till M. Baumann. The manuscript should explain why a 2-day window was selected, how window width influences the results, and how sensitive the analysis is to this choice.

**A:** [Since both reviewers provided critical comments regarding this material and the topic is not central to our discussion, we have completely removed it from the manuscript and now focus exclusively on near-inertial currents.](#)

**Q3:** A number of references cited in the main text do not appear in the

bibliography, for example More and Polyakov 2025, as well as the methodological papers mentioned above. Completing the reference list will help readers trace the provenance of data and techniques.

**A:** [We have revised the list of references – thank you for pointing that out!](#)

**Q4:** Finally, the presentation could be streamlined. The manuscript contains many multi-panel figures, some of which repeat similar seasonal or depth-time information. Reducing the total number, improving resolution, and tightening captions would strengthen the flow and keep focus on the principal findings.

**A:** [We have reduced the number of figures to 12 and revised the figure captions.](#)