Minor Comments:

1. Lines 91-95: It is unclear how the authors are drawing these conclusions here. Are these findings all from Solodoch et al. 2023? The wording is vague, e.g., “good agreement”, “appear consistently”, “generally in agreement”, “compare well”, “fair agreement”. I recommend briefly clarifying how these conclusions were drawn with more quantitative language.
2. Lines 162-165: “When referenced to the shared summer minimum, the wintertime increase in the East is ~24% larger than in the West…” I believe that it is important to make this finding crystal clear since it is included in the abstract as the main quantitative conclusion. Is the “shared summer minimum” the minimum mean Chl concentration of the two boxes, or is it the minimum from the unsmoothed daily Chl data? Is the 24% increase the mean result? Are 11.5 (Line 164) and 25% (Line 165) mean values? Where are the results of 24% compared to 25% drawn from? 25% and not 24% is referenced again in the Discussion (Line 258).
3. The authors clearly show that the submesoscale circulations increase offshore transport by comparing Lagrangian particle simulations in the 300m and 3km wintertime simulations. However, the 3km offshore particle transport is still larger than the summertime (Figures 4B/H, C/I, and 5A), indicating that mesoscale transport plays some role and should not be entirely discounted. Lines 233-235 would be an appropriate place to further clarify this, e.g. “***mesoscale*** wintertime spirals”, with some mention in Lines 259-261. E.g., “the observed winter enhancement cannot be explained by local vertical processes, regional differences in nutricline structure***, or mesoscale currents alone***.”

Technical Corrections:

1. Abstract Line 6: Recommend removing the word “also”, since that is interpreted to reference the previous sentence, which describes vertical submesoscale processes that are not the diagnosed mechanism of increasing chlorophyll in this case.
2. Line 18: Recommending not to start a new paragraph here to improve flow.
3. Line 81: Readers may not be familiar with what a sigma level is. Please briefly define, e.g. “terrain-following depth levels”.
4. Lines 138-139: Reference the dashed lines in Figure 1A, B to visually aid the reader, and describe in the caption of Figure 1 what the dashed line represents.