

Summary and recommendation: This paper is an important contribution and should be published pending a major revision.

Major concerns:

- (1) Satellite data alone are not sufficient to reveal dynamical mechanisms that maintain various fronts except for some obvious cases such as, e.g., river plume fronts. Therefore, it is not clear how the authors can tell a tidal mixing front (TMF) from a “thermohaline” front (using the authors’ terminology). Perhaps, the authors relied on numerous studies by Japanese oceanographers who studied the Seto Inland Sea (SIS) from in situ data. If this is the case, then (A) such in situ studies should be cited with regard to each of 12 fronts identified in this study; (B) vertical sections of T and S across these 12 fronts should be provided in the main text or in the Supplementary Materials.
- (2) The authors write about fronts “around” various straits. This is confusing. The authors should re-write such sentences, avoiding the ambiguous “around” descriptor.
- (3) TMFs are typically aligned with certain isobaths. The depth of such isobaths marks the maximum depth of wintertime convective mixing. The authors apparently ignored this fundamental relation between TMFs’ locations and bathymetry.
- (4) Many references are incomplete. Make sure that volume number, issue number, article number, and pages are always provided when available.
- (5) L140: “Generally, pixels with $\text{grad } T > 0.1 \text{ }^\circ\text{C}/\text{km}$ are identified as fronts.” – This threshold (used by many authors) is arbitrary. A discussion of front definitions is warranted.
- (6) L175: “Shapes of tidal fronts in the SIS primarily align orthogonally with the direction connecting the straits and basins, coinciding with the tidal current direction.” – See Comment #3 above.

Comments on Figures:

- (1) Figure 1. The color scale in **Figure 1a** is not good. Use standard color scales like “jet” or “nipy_spectral” in Matlab. The color scale in **Figure 1b** is awful. Use jet or nipy_spectral.
- (2) Figures 2, 3, 4, and 6: Color scales are poor. Use jet or nipy_spectral.

Minor comments:

L15: “spatial amplitude” (?)

L30: “crucial in” (?)

L47: “appearance frequency” (?)

L72: “intensigied” – intensified [Use spellchecker!]

L75: “intra- and month-dependent variations” (?)

L145: “...the SST data phase in a tidal cycle...” (?)

L271: “... heavy water ... above the light water...” (?) – “Dense water” would be better.

L382: “According to the effects of horizontal motion of water which has a horizontal buoyancy gradient on frontogenesis” – Re-write.

Best regards,

Igor Belkin, 2024-06-27