

Review of manuscript 2023-418 *Internal tides off the Amazon shelf Part I: importance for the structuring of ocean temperature during two contrasted seasons*, by F. Assene et al.

Manuscript reviewed by Clément Vic on 9th November 2023.

This is my third review of the manuscript. The authors addressed most of my comments favourably. The manuscript has shortened and improved, and the science is more clearly presented. Importantly, wobbly and confusing statements have been removed. I recommend the manuscript to be published after taking into account a few minor comments – one of them concerns a whole section of the discussion that I find speculative. There are still a few sentences that read bizarrely and I think the manuscript would benefit from thorough proof-reading. I tried to give some advice on writing where I could but failed at doing it thoroughly throughout the whole manuscript. I do not want to review the manuscript again.

Minor comments

- L. 37: Temperature does not “play a role” per se, it is not a process or mechanism. Maybe this sentence could be rewritten to focus on the processes that shape the temperature structure?
- L. 52 and in many other places: Please choose between using “barotropic” and “baroclinic” OR “external” and “internal”.
- L. 70 (and elsewhere): You cannot start a sentence with “But”
- L. 79: EKE has already been defined. Please remove “eddy kinetic energy”
- L. 85 and in other places: “in turn” is wrongly used. Please remove here.
- L. 98: “runs”? flows?
- L. 123: “represents” -> is
- L. 150: remove “ ‘s”
- L. 155: “multiplicative factor” on what?
- L. 205: remove “(from ...)”
- L. 206: remove “ADV includes nonlinear ...” as this is not generic to all advective processes, and the nonlinearity is not discussed later.
- L. 210: “work”? effect?
- L. 225 and elsewhere: remove “color shading” and “solid contours”. These should only belong to the caption, except in the case of very complex and rich figures for which the reader needs to be guided.
- L. 239: remove the sentence starting with “In addition”, it does not hint at any explanation for differences.
- L. 247: missing verb “they from”
- L. 257: “propagation” -> wavelength
- L. 264: add “satellite” before “estimate”?
- L. 269: remove second occurrence of “SST”
- L. 270: split the sentence in two and remove “then” (no logical link)
- L. 284: remove “of the model”
- L. 291: remove “an”, add “performance” after “model”?
- L. 296: “with” -> as
- L. 303: remove “the” before “temperature”
- L. 312 and in many other places: remove “the” before “tides”

- L. 313: "shows" -> show
- L. 343: you cannot start a sentence with "And"
- L. 362: "both" -> the two. (both is not used when contrasting subjects' properties)
- L. 376: split the sentence in two at "further"
- L. 385: wrong use of "whilst"
- L. 393: "missing" -> absence
- L. 409: "tight" -> thin
- L. 415: remove "Fig 6b and 7b"
- L. 430 and elsewhere: remove "the" before "ZDF" (before acronyms most of the time)
- L. 485: The sentence is confusing. Do you mean that the diffusive part of the advection scheme overwhelms the explicit diffusivity? Or that the diffusive part of the advection scheme has larger impacts in terms of cooling/warming than the advection?
- L. 491: "weak extreme"? extremum?
- L. 497: "tides hardly generate h-ADV"? That is something we already discussed previously, that the tides are mostly linear at the scales resolved by the model and we do not expect them to have an important advective effect.
- L. 511: I do not understand the reasoning leading to the statement "energy dissipated to internal tides is mostly transferred to mixing" To me, this is related to the mixing efficiency (Γ) and needs to be addressed via an energetic approach.
- L. 523: "That vertical profile is probably the case"? Please clarify.
- L. 527 and elsewhere: remove "the" before "SST"
- L. 529: "offset"?
- L. 530: sentence cannot start with "But". Also, "working" should be replaced with "acting" or "at play"
- Section V.2: This section is quite speculative. Wavelengths are estimated visually, but the discussion would require robust estimates (via spectral analysis?). I would recommend to strengthen the section with further analyses or delete.
- L. 541: is a verb missing?
- L. 569: "before" -> onshore?
- L. 577: why "i.e."? there is no clear link between the two parts of the sentence.
- L. 609: missing "of" after "scope"
- Section VI. The summary deserves to be rewritten to clarify the main points. There are still many typos and unclear sentences. For example, L. 612, you should not define a new acronym ("IT") at this stage.