Esteemed Reviewer, We are appreciative of the constructive feedback provided on our paper. The ensuing responses are intended to address the comments that have been raised. Following the conclusion of the interactive discussion, a revised version of the paper will be made, incorporating the necessary modifications.

Section 2.1: More information should be provided regarding the model setup. How long was the model run, and what is the spin-up time? Why this model was selected?

We will expand upon the description of the numerical simulation in section 2.1. To answer your questions, the numerical simulation was run for 13 months, after an 18-month spin-up period during which tidal forcing was activated for the last six months. The simulation started from a 1/12° reanalysis (GLORYS12v1). This simulation was chosen because it is one of the few in the world to resolve a realistic internal tide field over an entire basin, and because the authors have access to the hourly outputs for post-processing.

Model validation is an important part of the study. Please summarize the results from the referenced studies instead of expecting the reader to explore those papers independently.

We will include the relevant information in the revision. In summary:
-> A comparison of the barotropic tide with the FES2014 tidal atlas, which is used for boundary tidal forcing in the simulation, showed good agreement, particularly with regard to the dominant semi-diurnal amplitude.
-> A comparison of the mesoscale field with the AVISO/DUACS product (i.e. comparing the standard deviation of daily-averaged SSH at a similar spatial resolution) shows a reasonable degree of agreement. However, eNATL60 is more energetic, which is to be expected given the coarser resolution of the AVISO/DUACS product. Further intercomparison of submesoscale-permitting numerical simulations by Ushida et al. shows that eNATL60 falls within the range of various models in terms of mesoscale energy and dominant patterns (e.g. the mean location of the Gulf Stream).
-> A comparison of semidiurnal energy with drifter data, and of coherent IT (although the time window for its definition is inevitably different), shows fair agreement (Lahaye et al., 2025, SI). The main beams are captured in eNATL60 (compared to HRET), although the amplitude is larger, as expected given the shorter time window for computing the coherent signal using harmonic analysis. Conversely, the surface semidiurnal agrees with the drifter-derived estimate within a factor of 0.5 to 1.5 across most of the domain.

Line 63: Explain “partial steps”

'Z-coordinate with partial steps' means that the vertical levels are at a fixed, horizontally homogeneous depth, except in the vicinity of the seafloor, where the depth of the final level is equal to the depth of the seafloor (see Madec et al., 2019, Fig. 3.5). This information will be added in the revision.

Line 74: Why were these four months specifically chosen?

These months were chosen to provide an even coverage of the eight-month simulation period and to capture any seasonal variations that could be observed during this time.

Line 75: What criteria were used to select these regions? Additionally, could you summarize the findings from Ba24 that influenced the choice of these regions?

These regions were chosen because they exhibit three different configurations of the internal tide and its interactions with the low-frequency circulation, as previously demonstrated in Ba24. This can be summarised as follows: the Azores domain features strong IT generation that propagates through weak mesoscale currents; the Gulf Stream domain features IT generation and propagation inside an energetic mesoscale field; and the northern domain shows IT generation where the waves are unable to propagate very far, as well as active, slowly varying circulation. In Ba24, these three domains were found to be representative of three different dynamical regimes for the internal tide energy budget (5 other subdomains exhibited very similar properties): the Azores were dominated by interactions with the topography; the Gulf Stream region exhibited a forward energy cascade caused by the advection of the IT by the slowly varying circulation; and the northern domain hosted energy exchanges between the slowly varying flow and the internal tide through shear production terms. This will be added to the revised paper.

Line 125: Please explain the rationale behind the assumption that the coherent and incoherent components are orthogonal.

In theory, and for an infinite or periodic signal, this properties is merely the orthogonality (with respect to the L_2 norm in time) of Fourier constituents. In practice, the extraction of the coherent component involves minimization of the squared residual $\int_T|y-y_c|^2$, *i.e.* $\int_T y_c^*(y-y_c)=0$. Thus, the residual (the incoherent part) is orthogonal to the coherent part (with respect to the finite time L_2 innerproduct over the considered time window). This result can be extended to the coherent and incoherent part of two distinct fields provided the relative amplitude of the different harmonic constituents are the same. These considerations will be added in full details in the revised paper as an appendix.

Section 3.4: As Table 1 contains important information, please elaborate on it in this section. Discuss the physical factors in these regions that may be influencing the results. Additionally, mention if others have observed similar outcomes.

Thank you for your suggestion, we will expand the corresponding section in the revised version of the manuscript.