Thank you for revising to reflect comments from reviewers #2 and #3. I have a few questions regarding the revision. Could you please consider these points before finalizing this manuscript? Line numbers are those of the Track Change file (egusphere-2022-1029-ATC2.pdf).

Thank you for your time and encouragement.

L.6. mm-scale → millimeter-scale

Changed in three places.

L.31-32. I can see why N_2 can modify M_2 by 20 % in amplitude, but why 4 % of mixing? If mixing is a quadratic function of amplitude, I would argue it is 40 % larger (1.2 * 1.2 = 1.4). Or is it 4 % (0.2 * 0.2 = 0.04)?

It is 4% (0.2*0.2 = 0.04). Now the two sentences read: "*Theoretically, N_2 may modulate M_2 internal tides by ±20% in amplitude, and by ±40% in energy (i.e., $(1±0.2)^2$). On average, N_2 will enhance the M_2-induced ocean mixing by 4% (i.e., 0.2^2).*"

Section 2.6, σ is usually used to denote standard deviation (square root of variance) not the variance. It might be less confusing to follow this tradition.

Thanks for pointing it out. We examine variance (not its square root) in this study; therefore, we replace σ with σ^2 throughout this manuscript to avoid confusion.

Considering that (1) σ was used in our reply to Ref#2, and (2) the best empirical factor (m) is 2 (not 1.5), we replot Figure 6 to better present our analysis process. Figure 6 now has six panels. The two new panels are for the model variance (c) and the error variance (d). Figure caption and relevant text are edited accordingly.

L.211 and L.214. The integrated variance reduction is difficult to interpret as there is no obvious quantity to compare these numbers with. Is 500 small, is 1.9×10^4 large? It also depends on the integration path lengths (i.e. mask area in Fig.6(d)). The dimension appears wrong as it should have a dimension of $(\text{length})^3$ after integration along the tracks. I am aware of the comment from Ref#2 relevant to this paragraph. I suppose a relative reduction rate (e.g. reduction of X%) would be sufficient.

Good point. In our previous along-track integration, we omitted the across-track width, and thus the results were in mm^2. Following this suggestion, we now calculate the along-track mean variance reductions (not integrals suggested by Ref#2).

We feel that a relative reduction rate (%) does not help, because internal tides are very weak signals in the satellite altimetry data. N_2 internal tides account for about 0.05% of the total SSH variance, which explains why it is challenging to extract N_2 internal tides. But keep in mind that internal tides and weak submesoscale motions have comparable variances and similar spatial scales, which partly motivates this study.

Caption to Fig.9, It is arguable whether the Antarctic Circumpolar Current is a "boundary" current or not.

Changed. Now it reads: "*Green contours indicate regions of strong mesoscale motions, where the N_2 internal tides are overwhelmed by errors (see Figure 6e).*"