>>>I thank the reviewer for the time to comment the revised version of my paper. My replies are behind >>>

The newest version of the paper has removed references to AMOC collapse, but in my opinion writes a great deal to make the minor point which I paraphrase as: “lots of poorly modeled processes might affect the climate, so we should be careful with simple models”
But it’s relatively harmless.

This paper is worth publishing because it poises some interesting questions about the different types of motions in the deep ocean that we might be neglecting. The answers are not definitive but might be stimulating. Good questions are as important as good answers.
>>>Thank you for the appreciation.

A few comments:

Much recent work has made progress in merging older concepts of ‘vortical mode’, ‘velocity fine structure’ and “stratified turbulence’ in a dynamical flow type that some call ‘LAST’, which has many of features of the flows discussed here. This work is mostly modeling and the frequency spectra are not very well known, but could be. Some refs are:

The basic argument: Riley and Lindborg (2008) doi: https://doi.org/10.1175/2007JAS2455.1
>>>The paper is on horizontal wavenumber k_h spectra for length-scales O(10-100) m arguing that a scaling of k_h^-5/3 in fact reflects stratified turbulence having low horizontal Froude numbers at scales > Ozmidov scale, and which includes (nonlinear) internal waves. This is not the scale range < Ozmidov scale of KO-scaling for isotropic 3D turbulence. However, both ranges are considered to yield a downscale energy transfer. Remarks: internal waves are not irreversible turbulence until they transfer energy after breaking; As vertical Froude numbers ~1, stratified turbulence has also been called ‘marginal stability’ (flows), not necessarily in the Miles/Howard context but in the context of nonlinear flows described by Abarbanel et al 1984 and e.g. explaining stratified North-Sea observations (van Haren et al. 1999); reanalysis of R&L2008 Figs 4,5,7,8 also shows BO-scaling. Moored deep-water observations (e.g., van Haren and Dijkstra,2021; van Haren et al., 2024) demonstrate BO-scaling at frequencies < Ozmidov frequency.

LAST: Falder et al. 175 (2016) https://doi.org/10.1175/JPO-D-15-0140.1
>>>This paper confirms R&L2008 using seismic observations; they define LAST layered anisotropic stratified turbulence, in which, for my taste, the first two words are redundant given the definition that stratified turbulence covers scales larger than the Ozmidov scale.

A theoretical framework: Chini, G. P., Michel, G., Julien, K., Rocha, C. B., & Colm-cille, P. C. (2022). doi: https://doi.org/10.1017/jfm.2021.1060
It might be worthwhile mentioning this.
>>>This paper connects LAST with Marginal Stability in numerical modelling. This and the above papers are quoted now in Section 5, with a summary of the remarks given above.

Line 164 “Convective turbulence … has never been quantitatively directly observed in deep dense-water formation zones” How about “Steffen, E.L. and D'Asaro, E.A., 2002. Deep convection in the Labrador Sea as observed by Lagrangian floats. Journal of Physical Oceanography, 32(2), pp.475-492.”
>>>’Quantitatively’ was meant to refer to turbulence values like eps and Kz; with ‘deep dense-water water’ I had in mind reaching the >1000 m deep seafloors, after reading Thorpe (2005). S&DA2002 is a nice paper, quoted now, in which Lagrangian float measurements are described, especially on small-scale vertical velocity, which have the same order of magnitude as those reported by Schott et al. (1996), and which yield average vertical heat flux estimates reaching to about <1000 m from surface. It would be challenging and nice to set-up an experiment in which such floats are equipped with microstructure instrumentation.

Line 219 - “It is noted that ocean-spectra may …. but they lack gaps” Which ocean spectra do you mean?
>>>In principle all, but here mainly frequency spectra of KE and scalars such as temperature from moored instrumentation are meant, as indicated now. All depends on definitions of a gap or a depression, of course.