

**Report on the manuscript npg-2023-22 entitled "Evolution of small-scale turbulence at large Richardson numbers" by Ostrovsky et al. submitted for publication to NPG**

The goal of this paper is the verification of the theory of the stably stratified turbulence for the oceanic flow using the data from the upper level oceanic turbulence. In particular, it was clearly demonstrated applying the data from the upper level oceanic turbulence that small-scale turbulence is maintained even at large gradient Richardson numbers. Main mechanism of this phenomenon is caused by conversion of turbulent kinetic energy into turbulent potential energy and self-control feedback of the increased fluctuations of density which decreases the vertical mass flux. Analogous phenomenon exists in the atmospheric turbulence where the self-existence of stably stratified turbulence is related to the conversion of turbulent kinetic energy into turbulent potential energy with increasing the vertical gradient of the mean potential temperature; and self-control feedback of the negative down-gradient turbulent heat transfer through efficient generation of the counteracting positive non-gradient heat transfer by turbulent potential energy.

This paper is very interesting and important. The topic of this paper is of a great interest to many readers of NPG. The presentation is clear and concise. The paper put the obtained results into context, with relevant references. The length of the paper is appropriate. The text is fluent and precise. The title and the abstract are pertinent and understandable to a wide audience. All figures are necessary and of appropriate quality. As a whole, the article contains new significant results and it reflects sufficiently high scientific standards to warrant its publication in NPG after minor corrections (see below):

1. In the left hand side of the second equation (2) for the turbulent potential energy  $P$ , the derivative  $\partial P/\partial z$  needs to be replaced by  $\partial P/\partial t$ , where  $t$  is the time and  $z$  is the vertical coordinate.
2. Similarly, in the left hand side of the second equation (3) for the turbulent potential energy  $P$ , the derivative  $\partial P/\partial z$  needs to be replaced by  $\partial P/\partial t$ .
3. Line 67: the bracket after  $P$  in  $Db^{1/2}P)/L$  needs to be removed.
4. In Eq. (4),  $f(Ri$  needs to be replaced by  $f(Ri)$ .