

Answers to editor

Comments to the author

After reviewing your revised manuscript, I have decided that it is suitable for publication pending the following minor and technical corrections.

Specific Comments

Q1: Line 104: Please define "rigid lid hypothesis" in terms of boundary conditions employed.

Answer: Thanks for the suggestion. In the revised version, we have added the corresponding definition, the specific revisions are as follows (L118-L120):

The upper boundary ($z = H$, with H the depth of computation domain) is treated as a rigid lid, the kinematic boundary conditions for this boundary are given by

$$u_k(x, y, H, t) = 0 \quad (5)$$

Q2: Eq. (2): e_3 is a vector and should be bolded. Please fix later occurrences.

Answer: Thanks for the suggestion. In the revised version, we have revised it accordingly (L107 and L115).

Q3: Line 122: Please define SST as "Shear Stress Transport".

Answer: Thanks for the suggestion. In the revised version, we have revised it accordingly (L125).

Q4: Eq. (11) and (12): Please define Δt as the time-step.

Answer: Thanks for the suggestion. In the revised version, we have revised it accordingly (L154).

Q5: Line 154: "initial moment" should be "current time".

Answer: Thanks for the suggestion. In the revised version, we have revised it accordingly (L158).

Q6: I guess Eqns. (33)-(36) represent wave speeds. Please briefly defined the physical significance of the quantities.

Answer: Thanks for the suggestions. In the revised version, we have added a concise definition to Eqns. (33)-(36), the specific revisions are as follows (L260-L262):

where ζ is the isopycnal vertical displacement; c_0 is the linear phase speed; the coefficients c_1 , c_2 and c_3 are functions of the steady background stratification and shear through the linear eigenmode (vertical structure function) of interest (Helfrich and Melville, 2006)

Q7: 7. Line 608: Replace "center" with "centre".

Answer: Thanks for the suggestion. In the revised version, we have revised it accordingly (L614).