Response to Reviewer 2

The authors are most grateful for your comments. We have followed your suggestions and revised the manuscript accordingly. Please, find our responses below.

In this work, the authors discussed energy loss during the ISW breaking on the slopes. Four types of interaction between ISW and slopes were discussed and a parameterization analysis method was applied in Lufeng region in SCS. They concluded that the results could be used for the identification of "hot spot" of energy dissipation in the ocean. The results may be valuable for researchers who study the ISW on the slopes. Therefore, I recommend a minor revision for this manuscript.

Detailed comments are listed below:

1. The writing should be improved. There are many grammatical problems in the manuscript making it difficult to read. The text should be revised by a native English-speaking person.

Answer: We have revised the writing.

2. The introduction needs to be significantly improved in logic and the key points should be highlighted.

Answer: We rewrite the introduction and added information about internal solitary wave in South China Sea, their characteristics, and add 18 new references.

3. A table should be provided in Section 2 for the parameters.

Answer: We added Table 1 in Section 2 with α β γ parameters of ISW in numerical, laboratory experiments and field observations. P. 5. NPG_Terletska_revised.pdf

The breaking of ISW also requires a clearer definition.

Answer: We add the definition of ISW breaking:

P. 1 L. 3-6 NPG_Terletska_revised.pdf
"…. the breaking of internal waves over bottom topography when fluid velocities exceed wave phase speed that causes overturning of the rear face of the wave."

P. 2 L. 33-35 NPG_Terletska_revised.pdf
"(ii) ISW breaking on the slope occurs when fluid velocities in the wave exceed wave phase speed. That led to the overturning of the rear face of the wave, shear instability, and intensive mixing."

In Page 5 Line 16, a number "3" was given but it was meaningless, similar mistakes need to be fixed.

Answer: Thank you. We fixed mistakes and other typos

4. More detailed explanations for the configuration of experiments should be given in Section 3.

Answer: The text was added

P.7 line 136. NPG_Terletska_revised.pdf

"The flux of salinity through the flume boundaries is also set to zero."

Also we modify Tables 2 and 3 by adding the corresponding column with zones for each set of the experiment.

There is a mismatch between Fig. 4 and its caption, the subgraph in Fig. 4 should be marked to remind the readers which one corresponds to a particular moment.

Answer: The caption to the Fig. 4 was corrected. The time for each snapshot in Fig.4 was changed accordingly with the caption.

5. How was the pseudo-energy calculated? Please provide the equations.

Answer: We add the equation for the pseudo-energy calculation in the text

P. 10. Line 171 NPG_Terletska_revised.pdf

"Energy loss by breaking waves was estimated following [Lamb2007] and [Maderich2010] from budget of depth integrated pseudoenergy. To find the balance of the total energy we have calculated the total energy of the incident, reflected, and transmitted waves before slope and on the plateau by using the depth-integrated pseudoenergy flux F(x,t),

$$F(x,t)=\int_{-H}^{0}(E_{PSE}+p)\,U dz$$

where p is pressure disturbance due to passing wave and U is the horizontal velocities. Where E_{PSE} is the pseudoenergy density that is sum of kinetic energy density Ek and available potential density Ea (part of the potential energy available for conversion into kinetic energy). For calculation of Ea we used reference density profile that was obtained by an adiabatic rearranging of the density field. Then volume integration of these flows outside the mixing zone allows us to estimate the energy of the incoming PSEin, reflected PSEref, and transmitted on the plateau PSEtr waves, where

$$PSEin=\int_{x_r}^{L}\int_{-H}^{0}E_{PSE}\,dzdx\ ,\ PSEtr=\int_{0}^{x_l}\int_{-H}^{0}E_{PSE}\,dzdx\quad PSEref=\int_{x_l}^{L}\int_{-H}^{0}E_{PSE}\,dzdx\ ."$$