

Dear reviewer

Thank you very much for your effort and time to review our manuscript. Your comments and suggestions are very valuable and will be very helpful to improve our manuscript. We have revised the manuscript according to your comments and suggestions. Here is a point-to-point reply. The manuscript has been polished again by a professional polishing company (LetPub, www.letpub.com).

Question1, “The text needs to be rewritten with an improved English. For example, instead of the word “material” it is better to use “particle” (in line 30 and ...).”

Answer: Thanks. We have asked a professional English polishing company (LetPub, www.letpub.com) to polish this manuscript. We have used “particle” instead of “material” in the revised manuscript.

Question2, “In line 31 the sentence “The LS comprises three straits ...” should change to “The LS is comprised of three straits ...””

Answer: Thanks. We have revised the sentence and have highlighted it from line 32 to line 33 in the revised manuscript.

Question3, “In line 33 the sentence “These complex topographic features can ...” should be changed to “This complex topography significantly influences/affects the ocean/dynamic processes ...”.”

Answer: Thanks. We have revised the sentence and highlighted it from line 34 to line 35 in the revised manuscript.

Question4, “In line 37 the paragraph “The bifurcation of the Kuroshio ...” needs to be rewritten.”

Answer: Sorry. According to the comment of another reviewer, we have revised the introduction, and this sentence has been removed in the revised manuscript.

Question5, “In line 42 it is written that “These mesoscale eddies from the NWP can carry an enormous amount of kinetic energy and can alter ...” which should be changed to a sentence like

“These mesoscale eddies from the NWP transfer high kinetic energy and impact the local circulation” which also needs a reference.”

Answer: Sorry. According to the comment of another reviewer, we have revised the introduction, and this sentence has been removed in the revised manuscript.

Question6, “In line 45 the sentence “it is important to ...” needs to be rewritten”.

Answer: Sorry. According to the comment of another reviewer, we have revised the introduction, and this sentence has been removed in the revised manuscript.

Question7, “In line 51 authors say that Jing and Li (2003) “speculated”, to my knowledge in a scientific study nothing is speculated but is “found”. Also the sentence is not understandable which needs to be rewritten.”

Answer: Yes, you are right. We have rewritten this sentence and highlighted it from line 39 to line 42 of the revised manuscript.

Question8, “There are typos in the text (e.g. line 33 instead of the word “straits” it is written “straights”; line 77: instead of past tense of the verb “led to” present tense should be used “leads to”).”

Answer: Thanks very much. We have changed “straights” to “straits” and highlighted it in line 32 of the revised manuscript. The sentence involving “led to” has been adjusted when we revised the introduction of the revised manuscript.

Question9, “The introduction of a scientific paper gives sufficient background information to understand the writers’ study. Authors give a brief introduction of the region, ocean processes and eddy activity and a detailed summary of the previous studies but a very brief description of the present study I given and its scientific goal and necessity is missing.”

Answer: Yes, you are right. We have made a lot of changes to the introduction to emphasize our scientific goal and necessity. Our scientific goal is to study that whether this phenomenon of mesoscale eddies-eddies interaction can occur on the east and west sides of the LS and plays an important role in the particle and energy exchange between the SCS and the NWP, which has been

highlighted from line 52 to line 57 of the revised manuscript. The necessity of this study is explained and highlighted from line 63 to line 66 of the revised manuscript.

Question10, “References should be checked accurately. There are papers cited in the text but do not exist in the references section (line 50: Jing and Li, 2003; line 54: Yin et al., 2014; line 62: Zhang et al., 2007; line 76: Huang et al., 2019). References need to be checked carefully and the citations must be included in the references section/list.”

Answer: We apologize for the mistake caused by our negligence. We have checked references accurately and ensure the citations are included in the reference section of the revised manuscript.

Question11, “The authors need to follow Copernicus Marine Service instructions to cite the product correctly (<https://help.marine.copernicus.eu/en/articles/4444611-how-to-cite-or-reference-copernicus-marine-products-and-services>).”

Answer: Thanks. We have followed Copernicus Marine Service instructions to cite the product and highlighted it from line 431 to line 432 in the reference section of the revised manuscript. The format of references will be also revised according to the requirements of this journal.

Question12, “Also change the citation for the HYCOM model outputs in the text (e.g. model data is obtained from the HYCOM model output by the Naval Research Laboratory).”

Answer: Thanks. We have revised and highlighted it from line 95 to line 96 of the revised manuscript.

Question13, “Remove the links from the text and insert them in references section”

Answer: we have removed the links from the text and insert them in references section and highlighted them from line 431 to line 432, from line 444 to line 446, from line 458 to line 459 and in line 433 of the revised manuscript. The format of references will be also revised according to the requirements of this journal.

Question14, “As written in section “Results” authors explain the method applied for the identification and seasonal variation of the eddy pair. This is not a part of results of the study. The method should be move into section two and described in methods section. The results from eddy as “2.3”. The identified eddy pair should be shown in results section as a subsection (i.e. 3.1).”

Answer: In method section, we have added a subsection 2.2.3 to give the definition of modes and intensity index of the counter-rotating eddy pair, which have been highlighted from line 142 to line 150 of the revised manuscript. We have split the original subsection 3.1 into two parts: “3.1 Identification of the counter-rotating eddy pair in the LS”, and “3.2 Seasonal variation of the counter-rotating eddy pair in the LS”, and have also made some minor changes to the writing logic accordingly.

Question15, “In the text and in figure captions “Figure x is the same as figure x but ...” has been used which is not the way to refer to a figure (figure caption). The authors need to be precise about the captions and while referring to a figure in the text.”

Answer: We have no longer used this sentence “Figure x is the same as figure x but ...”, and added a complete caption under the Figures involved in the revised manuscript.

Question16, “Findings of the study are not discussed in section 4. Authors do not discuss their findings for meridional and zonal advection role.”

Answer: Yes, you are right. We have added some discussion of meridional and zonal advection role and highlighted them from line 376 to line 382 in the section 4 of the revised manuscript.

Question17, “In line 358 authors say that the details of figure 16d, 16e and 16f which illustrate BT, BC and WW will be discussed but in fact no details are found later!”

Answer: Yes, you are right. Sorry, it is a typo. Because the details of the original figure 16d, 16e and 16f are similar to the ones of the original Figure 16a, 16b and 16c, and we have discussed details of the original Figure 16a, 16b and 16c, our intention is not to discuss the details of the original figure 16d, 16e and 16f in this manuscript. We have revised the sentence in line 354 in the revised manuscript.

We thank you again for your constructive comments!