Dear Reviewer,

We appreciate your valuable and insightful feedback, which improved the manuscript. After carefully considering your comments, we addressed them point-by-point in red, referring to a modified PDF. All the modifications are in red.

1. Building on the introduction, a brief reference is made to how advances in artificial intelligence and machine learning have revolutionized oceanographic research. This can provide a broader context for the use of deep learning in this study.

We have revised the introduction and added references that highlight how AI has significantly contributed to advancing and pushing the boundaries of current knowledge in oceanographic research (50-61)

2. Measures taken to prevent model overfitting should be discussed in the article to demonstrate model generalizability.

Done (118)

3. Provide more detailed quantitative results on the model's performance, such as precision, recall, and F1 scores, to give a clearer picture of its effectiveness in detecting pinching-off events.

The scores are shown in the table of the appendix section

4. Describe the DBSCAN clustering algorithm in detail, discussing the limitations and assumptions of the DBSCAN clustering algorithm and how these limitations and assumptions affect the results. Mention other clustering methods considered and the reasons for choosing DBSCAN.

Done (211-216)

5. In terms of model selection, I think that U-net alone is not the optimal approach, and improvements to the U-net model should be considered and compared with other semantic segmentation methods, such as Swin-Transformer

Yes, we agree that other methods, such as Swin Transformers, could be more efficient, especially for detecting long-range dependencies in images. However, they tend to be more computationally intensive. Since our main focus in this paper is on local phenomena and considering our computational resources, we opted to use the U-Net, which has proven to be effective for our case and aligns with the aim of the paper.

6. Add a comparison of the U-Net model's performance with other existing methods for detecting coastal-offshore interactions, highlighting the improvements and any remaining challenges.

Done (We added a comparison with another method between 140-145)