

Final revision

I thank the author for the discussion over my concerns and subsequent clarification in the text. I just found a couple more places where some rephrasing would be appropriate that I did not mention specifically in my original review.

Given we agreed that the LCE was still alive long after March 2024, and how the conclusions were changed, please rephrase these sections in the ABSTRACT:

Yet, their full life cycle has never been observed synoptically at high resolution. In this study, we use novel SWOT satellite altimetry data to present the first synoptic characterization of a Loop Current Eddy's life cycle in the Gulf of Mexico, from formation to dissipation.

...

These findings not only validate decades of vortex theory....

Here some other places which for the same reason would be good to do some rephrasing:

L42. full evolution of a mesoscale eddy...

L48. [between its](#) formation in early October 2023 to [its](#) decay and disappearance by the end of March 2024.

Finally these few places with minor comments

L59. I would get rid of the statement "Note that this LCE is rather small compared to the average size of LCEs (Meunier et al., 2024)". On the one hand because Poseidon that is the one studied in Meunier et al 2024 does not represent an average size (it was unusually large), and on the other given that we agreed size does not particularly matter for the discussion presented.

L106-107. I would tone down by writing something like "The present observations show evidence that mechanisms.... which are consistent with theoretical and numerical..."

