Comment	Response	Line, Text old	Line, Text new	Text/Figure, new version, Text
Main comments				
The authors acknowledge that the tidal flow speed-up and slow-down provide spurious convergence and divergence values. And they can be in constructive or destructive interference with the filament's divergence. I would like this to be more quantitative. How much divergence is due to tidal flow alone? In plots about divergence, a rough value of tidal divergence and its phase is useful to guide the reader to understand when they are in constructive and destructive interference. The estimate for tidal flow could come from the model that the authors used to get the SSH estimate in their data processing.	Thank you for pointing to this, I also think it would help to have a number for the tidal contribution. I calculated the divergence with $w_{ssh} = 0 \text{ m s}^{-1}$ for $t2$ and then, just as a bulk number, the mean divergence over time and space; the results (normalized by f) are the following: $$\delta(w_{ssh} \neq 0) \approx -0.27$$ $$\delta(w_{ssh} = 0) \approx 0.60$$ $$\Delta\delta(w_{ssh} \neq 0) - \delta(w_{ssh} = 0) \approx -0.87$$ I also added the appropriate plots in the last column of this row for spatial variability assessment. So, the tides in this time frame add an overall negative divergence after slack water, increasing the convergence area/period, whereas at the beginning of the time frame they add divergence, both of half the order of the filament divergence signal.			

$\Delta\,\delta/t$

54.27	5
54.265	0
54.26	-5
54.255	-10
54.25	-15
54.245	-20

Latitude / °

8.05 8.1 8.15

Longitude / °

		Page	Line	
I think we have the opposite understanding of what ``filementogenesis'' is. I take it as processes that sharpen the filament/front, increasing its density/velocity gradient. That means, divergent flow at the light filament center is frontolytic. I can see opinions might differ on the definition because this paper is looking at a light filament, the opposite of the more commonly studied dense filament. The authors can make their own choice here, but should take a paragraph at the beginning of the paper to define the terminology in precise detail.	Thank you for the comment. That is true, our definition of "filamentogenesis" deviates slightly from the common term. I adjusted the following paragraph and I hope it is clearer now, what we mean with it.	44	44	"During frontogenesis, ASC drives upward motion on the light side and downward motion on the dense side, flattening isopycnals and enhancing stratification, whereas reversed ASC leads to frontolysis. Analogous dynamics occur in narrow buoyancy filaments, where horizontal strain sharpens buoyancy gradients and drives ASC, a process referred to as filamentogenesis (McWilliams, 2009, 2015; Garcia-Jove et al., 2022; Jakes et al., 2023). This circulation acts to restore stratified balance but modifies the filament structure depending on its buoyancy anomaly: dense filaments are reinforced by surface convergence and central downwelling that deepen the anomaly to several hundred meters (e.g., Garcia-Jove et al., 2022), whereas light filaments experience reversed circulation that shoals buoyant water toward the surface (Thomas et al., 2008) and promotes rapid filament decay. In this study, "filamentogenesis of light filaments" is defined as the ASC-driven adjustment process acting on buoyant filaments, in which reversed circulation transports light water upward and outward, shoaling the buoyancy anomaly and leading to rapid filament weakening and decay as stratification is restored."

Minor comments				
NSL is not defined anywhere as far as I can see.	Thank you for your comment. I defined the depth range of NSL in line 70.	70	70	"[…] near-surface layer (NSL; 0.1-10 m)."
What makes the anticyclonic strain zone anticyclonic? Strain is defined to be independent of vorticity. In this case, is the vorticity due to the shelf jet? For someone not familiar with the North Sea, some more description would be helpful.	You are right, I will be more precise. I did not calculate strain itself, but since the divergence term is part of it and by t3, -(δ/f) has mostly decayed, showing the filament has stretched in terms of the filament thickness (without telling about stretching direction). The vorticity comes from the frontal jet shear, so it would be better to say that it's a region of strong strain acc. to divergence that coincides with anticyclonic vorticity.	27	27	"In contrast, light filaments arise when buoyant water intrudes into denser regions, typically in regions of anticyclonic vorticity associated with the frontal jet, where horizontal convergence and shear help shape and elongate the filament."
For the light filament, does the ASC subduct the light anomaly? The classic picture paints it to spread the light anomaly on top with frontal divergence. From what I understood, that's what the observation shows in this paper as well.	Thank you for pointing towards this, you are completely right, I mixed up dense and light filaments in this sentences. Please see the correct version in the correction column.	28	28	"ASC upwelling spreads the buoyant anomaly above the mixed layer, […]"
Johnson et al. 2024 is nowhere to be found in the reference list.	Thank you for finding my mistake, first it has to be 2020, not 2024 and second, I missed adding the reference to the reference section. Please see the correction and added reference.	59 -	59 645	Johnson et al., 2020 Johnson, L., Lee, C. M., D'Asaro, E. A., Thomas, L., & Shcherbina, A. Restratification at a California current upwelling front. Part I: Observations. Journal of Physical Oceanography, 50(5), 1455-1472, 10.1175/JPO-D-19-0203.1, 2020.
Using km to describe the resolution might be better at such a resolution.	I just used the values given by the model, but I like your recommendation of providing the model resolution in km better. Thank you!	91	91	~3 km × 3 km
synoptic usually means O(1000 km), which this paper is not.	I did not come across a length scale definition for the term 'synoptic'. I refer to it as a temporal 'snapshot' of a process (e.g., a filament or front) that was obtained from parallel measurements fast enough (on submesoscale: hours-1 day) to capture the process. Do you think I could stick to that term? But I also thought about adjusting it a bit, because the drifters behave a bit different than the ASV transects (Lagrangian	375	375	"The synoptic-Lagrangian in situ observations in this study […]"

	approach). See in the last column my suggestion, I would be pleased to hear about your opinion.			
What does "capture the kinetic energy'" means? Fronts usually convert PE to KE.	You are right, fronts usually convert PE to KE. The focus of this sentence is especially on "[…], mainly when biofilms occur at convergence zones and the wave-dumping effect is visible […]". Then, filaments can store potential energy because waves and currents deform their viscoelastic biofilm structures and density gradients, temporarily converting kinetic energy into elastic or buoyancy potential energy, whereas ocean fronts typically do the opposite by releasing stored density-driven potential energy and converting it into kinetic energy of currents and eddies. I would much appreciate a recommendation on how to improve this sentence to avoid a misunderstanding for the reader. Thank you!	377	-	-