Response to reviewers' comments on the manuscript "The influence of a submarine canyon on the wind-driven downwelling circulation over the continental shelf: egusphere-2024-2386"

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1 Response to Reviewer #1

1.1 General Comments

1. Finally, as the flow is strongly influenced by the presence of the submarine canyon, I think the authors should discuss the importance of an adequate resolution of the sigma layers at the bottom. This is an aspect of great relevance when performing realistic numerical simulations (see, for example, Clavel-Henry et al. 2019, Ocean Science, 15, 1745-1759)

   Thank you for this point. We have clarified the sigma-coordinates parameters in the methodology, and we have added a paragraph in the discussion comparing to other papers focused on canyon/bottom boundary dynamics.

1.2 Specific Comments

1. L96-97: Since the numerical results depend on the correct definition of the bottom and surface Ekman layers, it is important to specify the scheme used to define the distribution of the sigma layers, indicating the values used for the relevant parameters, i.e. θ_a, θ_b, etc.

   The information was added to the text as follows; "The experiments were configured with 30 s-coordinate levels, using an increased resolution near the surface and bottom to resolve the boundary layers, with $\theta_s = 3$ and $\theta_b = 1$, Vstretching = 4, Vtransform = 2 and hcline = 50 m."

2. L103-104: Include the wind direction for clarity.

   Line 103 now indicates "uniform *northward (downwelling-favorable)* surface wind", indicating the meridional direction. Thank you.