

## ***Interactive comment on “Oceanic response to the consecutive Hurricanes Dorian and Humberto (2019) in the Sargasso Sea” by Dailé Avila-Alonso et al.***

### **Anonymous Referee #1**

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This study examines the upper-ocean response to the passage of Dorian and then Humberto in the same area about two weeks later. Humberto caused significant additional deepening of the mixed layer, shoaling of the thermocline, cooling of SST, and increase in chl-a concentration.

The manuscript is well written and organized, with plenty of statistics and assessments of statistical significance. The passage of two hurricanes over the same region within two weeks of each other is uncommon, so it's a good case study for analysis.

My main criticism is that it's not clear what is new or surprising about the results or why they are important. These aspects need to be emphasized, and I think additional

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analysis will be needed to do it. It seems like the unexpected or surprising result might be that there was so much additional increase in MLD, decrease in SST, increase in chl-a after Humberto, even though Dorian caused significant changes beforehand. One might have thought that the preconditioning of Dorian would have suppressed the impacts from Humberto. Is the strength of the ocean's response to Humberto due to the quick ocean recovery after Dorian passed? Or was Humberto strong enough to cause even more cooling and enhanced chl-a in the well-mixed upper-ocean that Dorian left behind? Topics such as these should be investigated and discussed (and maybe comparisons made to other single or multiple TC passages in the western Atlantic), otherwise readers will not know how to interpret the results or why they might be important.

Minor comments:

Lines 203-204: It's unclear what 'respectively' refers to because you mention deepening of 10 and 11 m, along trajectory and in the square area, and days 1 and 2. Is it deepening of 10 and 11 m along the trajectory and in the square area, respectively? Or at day 1 and 2, respectively?

Lines 220-225: It looks like there's a large positive SST trend in Fig. 6A. What if you remove the trend before calculating the 2019 percentages? Do they change?

Line 375: Several papers dispute the result of Kossin (2018). These should also be cited (Lanzante, Uncertainties in tropical-cyclone translation speed. *Nature.*, 570, E6–E15, 2019; Yamaguchi et al., *Nature Communications*, 11, 47, 2020; Moon et al., *Climate change and tropical cyclone trend*, *Nature*, 570, E3–E5, 2019)

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