General comments: This manuscript was an interesting look at extreme weather (Hurricane Larry) on DOM in three small catchments in Atlantic Canada in 2021, a region which had not experienced such an event in about 10 years. The novelty here is that studies of hurricane effects on coastal ecosystems in this region of North America are rare but are valuable because of increasing frequency of intense Atlantic tropical cyclones that may reach the region. The coupling of DOM and Fe in this study was interesting. The streams were small such that even after passage of the hurricane, discharge <1 m3/s. Site information, methods all were good.

Specific comments: I found the results in Figure 3 and bore additional discussion. Though not significant in magnitude I wondered if the proportional increase in a350 was closer to the proportional increase in DOC or in Fe? This could indicate if the a350 is attributable to DOC or Fe or both.

Reply: We have the Pearson's correlations between all the variables from our initial data analysis. For the purpose of the manuscript, we chose to only include the landcover correlations. The colour is mainly driven by the DOC seen by a correlation analysis between the Δa_{350} *and* ΔDOC *(*ρ*=1.00) compared to* Δa_{350} *and* ΔFe *(*ρ*=0.708).*

L160 - approaching significance isn't useful to describe; remove. In fact, the use of p values in this manner is not insightful and at times confusing. For example, Fe related to catchment properties - Why is p = 0.181 a relationship but p = 0.616 not a relationship? The relationship is evaluated by the strength of the correlation. While Fe had a high correlation with Wetland there was a lower correlation - not no relationship - to Peat.

Reply: When discussing the significance of the relationship we were evaluating the ρ *values to assign importance. However, based on your comment I see how this is inconsistent, we have removed the discussion of p values in the results and amended the section to focus on the correlation strength with the caveat of high p values. Additionally, the p values were removed from Table 2. See new paragraph below spanning lines 155- 167(page 9)*

"Correlation analysis (Table 2) on the changes pre- and post- hurricane revealed that changes in DOC and a_{350} *(i.e.* ΔDOC *and* Δa_{350}*) both had relatively strong negative correlations with the percent of peat in the catchment, as well as the total catchment area, and slightly less strong negative correlations to the percent forest cover. None of the correlations in the DOM analyses were statistically significant, due to the small dataset and low degrees of freedom. Neither* ΔDOC *nor* Δa_{350} *correlated strongly with the amount of wetland in the catchment, with small negative relationships. In contrast, changes in iron (*ΔFe*) showed the opposite behaviour, with no relationship to forest or total catchment area, but a stronger negative relationship to the amount of wetland in the catchment and a weak negative correlation to peat. Change in discharge was negatively correlated to amount of wetland in the catchment (*ρ *=-0.998) and had no relationship to any other landcover variables. High variability between BOD replicates limited the ability to assess bioavailability of the DOM accurately and precluded assessment of any changes before and after the hurricane. However, over all BOD samples appeared to be no more than a few percent of the total DOM."*

L178 - Explain the last sentence in more detail.

Reply: The last sentence refers to the fact that if catchment size was the only relevant factor for flux increase then SS as the smallest catchment should have the greatest increase, instead we see SR having this honour. The sentence has been amended to further explain this point (line 173-176, page 10):

"SC, as the largest of the three catchments was the least flashy incorporating the massive increase in precipitation. SR had the highest increases in fluxes of material following landfall despite being the second largest catchment. The dramatic increase in flux highlights that in addition to catchment size, landcover plays a major role in catchment response."

L183 - What does "type of land cover increases" mean?

Reply: The type of landcover here refers to the landcover type that is forest and peat for DOC and a_{350} and wetlands for dFe. So, the sentence says as there is more coverage of a specific landcover type there is a reduced Δ for the associated property.

We have rephrased the beginning of the sentence (line 180, page 10) to improve readability: " as the percentage of landcover type increases…"

L184 - Connect this point about buffering to the present work.

Reply: Line 185 and 186(page 11) have been amended to further comments on the ability of the landscapes dominated by peat to buffer increases. :
"*The landscape of NL is dominated by peat, and this can explain the small Δs seen in response to extreme weather events such as Hurricane Larry. Typically, the deeper layers of peat provide DOM to the waterways through groundwater infiltration with the top layers only being accessed during storm events and overland flow (Broder et al., 2017; Clark et al., 2007)."*

L193 - "found to build in" - rephrase to clarify

Reply: Rephrased to "found to accumulate" to improve readability. (line 193, page 11)

L196 - what might happen to the Fe once it encounters oxygen in surface waters and does this have any implication for DOC or CDOM?

Reply: Once the Fe encounters oxygenated water a couple of different reactions might occur. The most dominant one would be oxidation from Fe (II) a soluble form to Fe (III) an insoluble form. This has a greater chance of flocculating and settling out. Some of the Fe (II) before being oxidized can form a complex with the DOM and thus remain in solution. While a further option is the Fe (III) can either form a complex with DOM or adsorb to DOM particles and thus remain in solution. In this case the adsorbed Fe and DOM can be disrupted by factors such as salinity and other ionic interactions. Fe can interfere with CDOM. One of the main effects Fe can have is increasing the absorbance of the CDOM and red shifting the fluorescence.

L201 - who is ignoring them? Rephrase to clarify.

Reply: Acknowledged see the amended sentence below (Line 200-201, page 11) :
"Despite the increases being buffered by the presence of peat and wetlands the high concentrations of DOM and Fe present in these environments requires ongoing research to understand the controls on their fluxes."

L212 - Perhaps, it depends on the model. The systems here while having large DOC concentrations have small flows that offset their importance regionally. For South River, using average values reported here to upscale, I estimate the annual export of DOC is about 75,000 g C/yr. This is very small and probably not of regional importance but obviously could be important for local biogeochemical models. So, I would clarify that point.

Reply: I believe the argument the sentence makes is still valid on the larger biogeochemical models. The argument here is that these small catchments are being neglected. While it is true this can have a larger effect on coastal and regional models, I believe the point still stands for large scale models as well. It is not the individual impact of the three rivers that make them worthwhile for consideration of larger biogeochemical models, rather the cumulative impact of many small rivers dotted across the boreal region each inputting 75,000 g C/ yr or more can add up. This can thus lead to underestimations preventing a full picture of global cycles. As Khoo et al. (2023) paper argues, small systems are the majority in these C-rich boreal environments, forming close to 90% of the systems by neglecting them in models it can cause an underestimation. Through a better understanding of carbon cycling, the global models can be improved upon which has been noted in Friedlingstein et al. (2014). Similarly for the Fe exports Sanders et al. (2015) argues that through their calculations small wetlands can provide ~ 1.8Tg / year equivalent to the riverine load of 1.5Tg/year.

L213 - the authors may wish to look at Nick Ward's work on terrestrial-aquatic interfaces to better consider these points.

Reply: The authors are familiar with some of Nick Ward's work. His work in the Amazon basin is quite interesting and a good comparison of large river systems compared to our much smaller systems. His excellent review "Where Carbon Flows" was a very useful reference for the introduction placing our work in the greater context. The study of carbon export across estuaries is in general understudied and we have added a sentence to this section (line 212 page 11) to highlight the gap he identified:

"The study of carbon dynamics in estuaries in fact remains a key knowledge gap globally (Ward et al., 2017)."

Technical: L131: hurricane was misspelled; L222 - important in place of significant

Reply: Addressed see the appropriate lines