

Dear Editor and Reviewers,

Thank you for supporting the publication of our article in Natural Hazards and Earth System Sciences. We would also like to thank the reviewers for the constructive comments that helped improve the manuscript.

Please find below the response to each individual comments made by the editor and reviewers. Each change was incorporated in the revised version of the manuscript.

We have highlighted the changes in the version of the revised manuscript with track changes.

#### **Editor:**

Please, check also your interpretation of transition and boundary throughout the text. Some contacts between units are transitions and others are sharp boundaries. Events for example cause sharp boundaries, while sea level change causes a transition between two types of sedimentary facies / sediment types. Transitions related to a slow sea level rise are, for example, in lines 417, 551, 586.

We changed “boundary” for “transition” when discussing facies change due to sea level rise: L563 and 575.

#### **Report #2**

##### Abstract

Line 18: “opened” should be “open”. **Done.**

Line 20: Should “time-scale” be “timescale”?

**Changed for “timescale” in the entire manuscript.**

##### Introduction

Line 33: When you say “these” are you referring to hurricanes or the side effects of the hurricanes? Please clarify.

L33-35: “These hurricanes side effects may cause widespread power outages, coastal and inland flooding, beach erosion, infrastructure and structural damage, and direct human deaths (e.g., Gerritsen, 2005; Griffis, 2007; Karim and Mimura, 2008; Breilh et al., 2013; Takagi et al., 2017; Bacopoulos, 2019).”

Line 41: I’m not sure the word “further” is needed in this sentence. **Done.**

Lines 45-47: This sentence is very wordy. Could you condense it or split it into two sentences instead?

L45-47: “The question for local communities is hence no more if they will be hit by an impacting hurricane, but when and even more in what extent.”

Line 49: There should be no period between the end of the sentence and the citation. **Done.**

Line 50: Remove the comma after Cangialosi. **Done.**

Line 61: Remove the quotation mark after rainfall and the extra period. The next sentence should also read “consequences included ...” as you’re talking about an event in the past. **Done.**

Line 63: “Damages have cost ... with the amount ...” **Done.**

Line 64: Should you say “\$3.17 billion” instead of “\$3170 million”? **Done.**

Line 65: Add a \$ before 300. **Done.**

Line 73: “kind of extreme event” should be changed to “extreme events.” **Done.**

Line 80: The word “replace” should be changed to “place.” **Done.**

### Study Site

Line 88: The word “lying” isn’t appropriate here.

**L87-89: “The highest point of the island reaches 39 m above mean sea level (a.s.l.) and is located in the so-called Highlands area (Weil-Accardo et al., 2022) (Fig. 1B).”**

Line 89: “consist” should be changed to “consists.” **Done.**

Line 90: The word “whereas” would be more appropriate than “while” in this sentence. **Done.**

Line 93: Freshwater is one word, as is seawater in the next line. **Done.**

Line 96: Elsewhere in the manuscript you capitalize lagoon, but you don’t in this sentence. Please be consistent throughout.

**It was changed for “Codrington Lagoon” in the entire manuscript: L96; 126; 304; 337; 658; Fig. 1 caption x2; Table 1 caption.**

Line 105: Sea grasses should be one word. **Done.**

Line 117/118: Add “of” before Barbuda’s and make pond plural. **Done.**

Line 122: Add a comma after parameters and shear. **Done.**

Line 132/133: Should beach be capitalized? Add a comma after beach and the parenthesis. **Done.**

Line 139: Should read “The minimum pressure record was 914 mb.” **Done.**

Line 146: Remove the period after cm. **Done.**

Line 155/158/160/170: All of these use different abbreviations for magnitude. Please verify and be consistent.

**These different abbreviations for magnitude are directly related to the papers from which they originate. We have decided to conserve these original abbreviations, as they are the result of different calculations.**

Line 166: Elsewhere in the manuscript you write date month year but here you’ve written November 18th 1867. Please be consistent throughout.

**L166: “The 18th of November 1867, another tsunami was documented in the Virgin Islands and Guadeloupe.”**

## Materials and Methods

There are several issues with tense in this section. Past tense is appropriate for methods but there is often a mix of present and past tense. Please check this section to verify only the past tense is used.

See comments below.

Line 175: "Choose" should be "chose." **Done.**

Line 176: Should read "(1750-1785 CE; Tweedy, 1981)" and "(1813 CE; Bain et al., 2018)." **Done.**

Section 3.2: Tense issues

Modified phrases:

L182-183: "The morphological evolution of the western sandy barrier of the Codrington Lagoon over the period 1982–2021 was evidenced from a set of satellite images (Landsat and Global Land Survey data sets)."

L187-189: "Our selection included (1) three Landsat 1 – 5 images from 1982 to 1992 using Multispectral Scanner (MSS) Level-1 (images processed to a 60 meter pixel size);"

Section 3.5: Tense issues

Modified phrases:

L229: "The sum of the end-members corresponded to 100% of the grain-size frequency per sample."

L229-231: "These three end-members corresponded to the three main sediment grain-size modes: EM1= 20  $\mu\text{m}$ , EM2= 127  $\mu\text{m}$  and EM3= 269-993  $\mu\text{m}$ ."

L232-233: "These four end-members corresponded to the four main sediment grain-size modes: EM1= 4  $\mu\text{m}$ , EM2= 20 and 50  $\mu\text{m}$ , EM3= 127  $\mu\text{m}$  and EM4= 269-623  $\mu\text{m}$ ."

L233-234: "Given that EM1 and EM2 of core BARB1-18-05 were similar to EM1 of core BARB1-18-01, we chose to add EM1 and EM2 of core BARB1-18-05."

L234-235: "Thus, the grain-size results of cores BARB1-18-05 described and discussed below were EM1= 4-18  $\mu\text{m}$  and 50  $\mu\text{m}$ , EM2= 127  $\mu\text{m}$ , EM3= 269-623."

Line 224: You use grain-size elsewhere in the manuscript but here you use grain size. Please be consistent.

We changed for "grain-size" L224 and L225.

Line 228/231: In these sentences, end-member shouldn't be capitalized.

See comment below.

Line 236: Elsewhere in the manuscript you use "end-member" but in this line you use "end member". Please be consistent throughout.

We wrote "endmember" in the entire manuscript. The changed lines are : L228; 229; 230; 231; 232; 236.

Line 236: "followed" should be "follows." **Done.**

Line 236: Would "discussed" be a better word than "designed"? **Done.**

Line 242: Should be reworded to say “For core BARB1-18-01 there were a total of 19,894 (8,848 + 11,046) images available.” **Done.**

## Results

Line 303: Consider adding “the” in front of Codrington Lagoon. **Done.**

Line 304: Change “with the exception of” to “apart from.” **Done.**

Line 318: Add “has” in front of “enlarged.” **Done.**

Line 320: Add a comma after 2021 and inlet. **Done.**

Line 341: Should “dowlaping” be “downlapping”? **Done.**

Line 389: Once you talk about a species of foram, you can use the abbreviated first initial from then one. For example, *Pseudotriloculina rotunda* is repeated twice in this paragraph when you need only have it once. Thereafter you can say *P. rotunda*. Please check this throughout.

**We changed L380 for “*A. Angulatus*” and L381 for “*P. rotunda*”**

Line 391: Change “taxa” to “taxon.” **Done.**

Line 392: (eastern Red Sea; Abu-Zied and Bantan, 2013) **Done.**

Line 406: Add a comma after e.g. – check this issue throughout the manuscript.

**Changed at: L373; 406; 605.**

Line 407: Change “shells fragment” to “shell fragments.” **Done.**

Line 408: Remove “more or less.” **Done.**

Line 419: Change “abundant individuals” to “an abundance of individuals.”

**Changed at: L378; 419; 549.**

Line 437: Italicize *Quinqueloculina*. **Done.**

Lines 456/458/459: Elsewhere in the manuscript you use “end-member” but in this line you use “endmember.” Please be consistent throughout.

**See comment before about « endmember ».**

Lines 474/475/477/478/479: Same issue with endmember.

**See comment before about « endmember ».**

## Discussion

Line 567: Reword this sentence to say “Indeed, this shallower sea level could explain the high salt and organic matter content and low diversity and quantity of foraminifera indicative of an isolated coastal environment during F3 deposition.” **Done.**

Line 577: Change “zone” to “zones.” **Done.**

Line 578: Change “as a result of” to “due to.” **Done.**

Line 580: In the abstract you use “time-scale” but here you use “time scale.” Please use consistency.

**We changed for « timescale » at L20 and L580.**

Line 585: Remove “time” so that it says “for a period...”. Change the comma after 2020 to a semicolon. **Done.**

Line 601: Add a comma after i.e. – check this issue throughout the manuscript. **Done.**

Line 604: Change “consist” to “consists.” **Done.**

Line 685: Should say “Even if other events ...” **Done.**

Line 690: I would reword this to say “hurricane to impact ...” **Done.**

Line 694: Should have hurricanes, not hurricane. **Done.**

### Conclusion

Line 704: When talking about hurricane categories, it is appropriate to use the numbers (e.g., 1 to 4). **Done.**