Replies to Dr. Charles Paull (referee 1).

The manuscript describes a series of _circular depressions at the base of the Bahama Escarpment. These are curious features and their discovery may ultimately merit publication.

We would like to thank you for your constructive review. We agree the described features are "curious" and surprisingly of "km-scale".

However, the manuscript more closely resembles a first draft, rather than a polished work. As is, the existing draft is too poorly written to fully follow many of the arguments in detail. Part of may be attributed to the challenge of writing in a second language. I have made some suggestions as to how to begin to sharpen the wording, but it is an incomplete effort.

Thanks for your English corrections/suggestions. Much appreciated.

There are also a number of science related points (also indicate below) that need to be considered before this could be recommended for publication.

We have focused our review on these points. We have provided:

- The "Track changes" manuscript
- The present word files discussing and integrating the Dr. Paull's and Dr. Berndt's reviews.

Why are these depressions called pockmarks from the outset? What is actually observed are approximately circular depressions.

We have preferred to rename these depressions '*sinkholes*'. Indeed, they show clear morphometric similarities with Land and Paull (2000)'s features. However, we use the words '*submarine depressions'* in the results of this paper in order to stay neutral. Then, in the discussions part, we interpret these features as '*sinkholes*'.

The term 'pockmark' has evolved to imply that the depression was somehow physically excavated by seepage, not physical collapse. Moreover, it is not commonly been used in carbonate settings.

We fully agree. We have modified these points in the introduction and in the discussions. We interpret these features as 'sinkholes'.

The manuscript also refers to other similar depressions that have been previously been called plunge pools.

Just two of them have been called plunge pools in Mulder et al. (2017)'s works. They are located into the canyon and have been "*reused*" by turbiditic flow. They have not been taken in account during morphometric measurements. They will be discussed in a next paper this year: Mulder, T., Cavailhes, T., et al., submitted, Geology.

This is yet another mechanism for surface erosion. If these depressions had instead been called "Sinkholes", this would also imply a causal relationship with dissolution and collapse. Using any of these three terms presupposes an interpretative origin. However, the text argues

somewhat convincingly that subsurface dissolution and collapse, which would make a stronger case that these features are sinkholes.

We agree with your statement, the term '*pockmark*' is not appropriated in 2020 (Pockmarks are commonly "physically excavated"). We therefore use the term "*sinkholes*" in the discussion. We have used the terms '*submarine depressions*' in the text as well as the figures of the results.

Thus, should remodel the paper to first outline what is seen, before presupposing their possible origin. However, when the observable facts are considered, it seems that observations indicate that it is as likely that they are dissolution/collapse features (i.e., sinkholes) and not pockmarks.

We have renamed the manuscript in consequence: "The abyssal giant sinkholes of the Blake Bahama Escarpment: Relations between tectonic structures, fluids and carbonate physiography".

In the result -> We use *"submarine depressions*'

In the discussion -> we name these depressions '*abyssal giant sinkholes*'

Another recommendation is that the manuscript be constrained to what is actually observed and presented in the data. For example, while there is no evidence about the nature of the potential fluids, there is a long section on platform scale circulation and chemical evolution and circulation of fluids within the entire Florida Bahama Platform. It is laced with partial errors and inaccurate referencing.

Thanks to your comments, we have modified and added references. However, we thought that an attempt to perform a comprehensive review of the last 30 years of literature would ultimately help to understand the platform-scale fluid circulation, in particular regarding the brines. We are still thinking that we need to propose/sketch a platform-scale 3D-Block integrating the literature. We would prefer to keep this section and related figures. However, we have shortened and simplified sentences as recommended in the comments below. In addition, we have used conditional tenses in our sentences to discuss the presence of brines.

However, all that is important for this manuscript is to say is that dense brines are known to occur and would provide a density head to move out in >4.5 km water depth in this area.

Indeed, we have added this point in the discussion as well as the abstract to strengthen the message. Thanks for your suggestion.

Another section that needs to go is the timing of activity. Frankly, without any particular evidence it is absurd to be trying to relate these to things like Milankovich timescales (ii), changes in hydrostatic head associated with seafloor erosion (iii), with earthquake induced tides (iv), and earthquake induced circulation. Moreover, this is generally considered to be one of the more tectonically in active areas along the Atlantic margin (vi). Thus, this is only wild speculation.

The idea was to have in one paper, a statement of the possible triggering mechanisms in the area. I agree, calling these features 'sinkholes', we do not need any triggering mechanisms

to propose for fluid expulsion. Therefore, according to your comments, **we have deleted the whole section**.

Line 1: The name in the title and elsewhere for this morphologic feature is well established to be the Blake Bahama Escarpment, not the "Black Bahama Escarpment".

We have corrected this and we apologize for this "Word" Automatic correction".

Line 16: Do not need to make water depth negative.

We corrected this. Thank you.

Line 32: Why "Triggers" collapses? Can see why dissolution results in collapses, but not why it is a trigger. Wrong word?

According to your comment, we wrote "cause". Thank you.

Line 34: While later in the text the question of whether the depressions previously interpreted to be "plunge pools" are actually plunge pools is discussed, dissolution does not produce plunge pools.

We think that plunge pools derive from a similar dissolution process creating sinkholes that are later reused by submarine sedimentary pathways and turbiditic flows, physically excavating the preexisting depression. We are currently writing a note on this topic. Mulder T., Cavailhes, T., et al.

Line 61: I think the features described in the Backshall paper are actually called dolines (i.e. sinkholes).

We have added a paragraph highlighting sinkholes and dolines formation processes. We refer to Backshall et al., 1979 in this new paragraph.

Backshall, D.G., Barnett, J., Davies, P.J., Duncan, D.C., Harvey, N.,Hopley, D., Isdale, P.J., Jennings, J.N., Moss, R., 1979. Drowed dolines–the blue holes of the Pompey Reefs, Greats BarrierReef. J. Aust. Geol. Geophys. 4, 99–109

Lines 57-69: This section indicates that the term "pockmark" has been used to describe a wide variety of features. In some regards, the term has lost much of its significance, but think that it is most commonly used to describe depressions in clastic sediments, following from the classic reference: Hovland M, Judd AG (1988) Seabed Pockmarks and Seepages. Impact on Geology, Biology and the Marine Environment. Graham & Trotman, London.

Thanks for your comment. Below are some sentences related to the meaning of pockmark from Hovland et al. (2002):

"*The term pock appealed to us as descriptive of the seabed depressions, and upon checking the meaning in various dictionaries we found that one (The World Book Dictionary, 1970) illustrated its usage as a transient verb in the following quote: ''The tens of thousands of craters that pock the face of the moon'' (Scientific American). We thus concluded that 'pockmark' might*

serve as an appropriate name both with regard to shape and distribution of the features.' (Lew King's account in Hovland & Judd 1988). It should be noted that it is now a fully accepted term in the geological vocabulary: 'pockmark: A concave crater-like depression of the type that occurs in profusion on mud bottoms… … The fluid may originate from any depth beneath the surface. Clearly, this means that they may be found in a wide variety of environments. Also, morphologically, they are diverse… *Pockmarks occur wherever fluid flow is focused and escape is from low-permeability, fine-grained surficial sediments …*"

In 2020, pockmarks are more related to a process (physical excavation by focused fluid-escape) than a morphology*. Contrarily to what the word "pock" (skin abnormal morphology which derives from a medicine diagnosis (pox)) would suggest. In addition, please note that we do not have evidences for current-day fluid seepages. Therefore, it will be difficult to distinguish inactive pockmarks from sinkholes. However, the underlying substratum is made of (i) carbonates, and (ii) the bathymetric depressions are similar to the submarine sinkholes of offshore Florida. As a consequence, we are probably dealing with **sinkholes**.

Line 122: Change "is a post-rift feature mostly made of a" to "are underlain by"

We have modified the text. Thank you.

Line 126: Again, the established name is the Blake Plateau, not the "Black Plateau". Make a global change.

We have modified the text. Thank you.

Lines 127-129: This is misleading, as noticeable structural deformation associated of the Cuban Orogeny does not extend through-out most of the Bahama Platform.

Indeed, they are just *slight deformations*. We have specified "slight tectonic interactions".

Line 138-139: Meaning of "never-the-less" is confusing. Is this implying a change in the Pleistocene?

Not really. The main phases of erosion are from the Cretaceous and Tertiary times. The erosion process could be still active. We have deleted this confusing part of the sentence.

Line 151: Misleading. Such high temperatures are not associated with the fluids from the seeps at the base of the Florida Escarpment. These high temperatures were measured at depths in bore holes into the platform at a considerable distance away from the seeps.

We have rephrased the text. *"can reach temperatures up to 115°C within the platform under Florida".*

Lines 157 – 161: This discussion is mixing what is inferred or directly seen at the Blake Bahama Escarpment and the Florida Escarpment.

We rephrased the paragraph specifying where the observations have been made.

This is inappropriate for both points i) and ii.), as there is a nearly two km difference in water depths and in different water masses which has a large impact on carbonate dissolution potential. Moreover, they are in very different geological settings. However, there are directly measured corrosion rates associated with ambient waters at the base of the Florida Escarpment. Paull, C.K., Commeau, R.F., Curray, J.R., and Neumann, A.C., 1991, Seabed measurements of modern corrosion rates on the Florida Escarpment, Geo-Marine Letters, v. 11, p. 16-22.

Thanks for your comment. We have added and contextualized the suggested reference (Paull et al. 1991). Indeed, ambient waters have the potential to efficiently corrode the anhydrite layers along the Florida escarpment, leading to undercutting and slope destabilization.

Perhaps the intention was to reference Paull and Dillon, 1980, as it at least as about the BBE? However, it still is not a correct statement, as it says that the observed widespread basal erosion was not entirely chemical.

Indeed, Paull and Dillon (1980) stated, "*Erosional events were not entirely chemical. Presumably, much of this erosion was caused by a deep current, perhaps similar to the present western boundary undercurrent*."

Line 159: The classic Peterson, 1966 reference showing increased dissolution with depth in the Pacific is inappropriate as used in this sentence.

We have removed this reference. Thank you

Line 159-161 – A paper that made direct observations about the impact of abyssal corrosion and currents at the base of the BBE is Land, L., Paull, C.K., and Spiess, F.N., 1999, Abyssal erosion and scarp retreat: Deep Tow observations of the Blake Escarpment and Blake Spur, Marine Geology, v. 160, p. 63-83.

We have added this reference in the paragraph to highlight the role of "anhydrite dissolution by ambient waters" along the Florida escarpment.

Lines -161-162 - Meaning unclear. What similar evidence.

We have simplified the syntax.

Lines 167 -169: Awkward, complicated sentence. Also, meaning of "motors" is unclear. Rephrase.

We change "motors" to "*drivers*" according to C. Berndt feedback.

Lines 169-170: Meaning of "non-quantified proportion is related to:" unclear.

We simplified the sentence to "*would be related to*"

Line 170: Rephrase as thermally driven circulation does not cause density gradients, rather density gradients induce circulation.

We have changed to the "thermally driven circulation and density gradients"

Lines 171-172: The inclusion of the role of magnesium in dolomite formation seems irrelevant to the mechanisms which stimulate flow. Cut it.

We have cut it.

Lines 175-176: Kohout circulation is normally is what is described in (i) above. Question whether it is appropriate to call the salinity difference driven flows Kohout circulation.

We have removed this sentence that seemed useless here.

Line 179: Specify low sea-level stands

We dit it. Thank you.

Line 180 – "eases" or increases?.

We have changed to "*Jointing optimizes the dissolution process by increasing surface area exposed to…*"

Line 181 – Meaning of "structurally porous" is unclear.

We have rephrased this part of the text "*both porous and permeable km-scale structural-pathways for fluids."*

Line 186: "New" – Why would be data collected on this cruise not be "new".

We have removed "New". Thank you.

Lines189: Spell out "HR" here as it is the first use. Also, suggest including something to support the meaning of high-resolution, as most authors claim their data is HR. For example, what frequencies were used, streamer length, and processing?

We have added "*High Resolution*". The whole paragraph has been rephrased consistently to C. Berndt feedback. Detail about frequencies, streamer and processing have been added.

Line 191: Unclear what 35/35 means? Also, the "penetration" of up to 2.5 seconds seems excessive based on what is shown in figure 3.

The whole paragraph has been rephrased. "four 35/35 inc^3 GI airguns"

Line 199: Suggest changing "current-day" to 'present day', as seafloor currents are relevant to this ms.

We have changed it.

Lines 200-201: Suggest replacing "that has been as a transforming ocean- continent passive margin" with "along this passive continental margin".

If we change the sentence as suggested, we lose the most important term "transform continental margin" (Mercier de Lépinay et al., 2016). We have slightly rephrased this part of the text.

Lines 200-210 and elsewhere: The use of all these two and three letter abbreviations makes it much harder to read the manuscript. Consider spelling out all but the most use ones throughout the paper.

This is needed for both manuscript and figures. We would prefer to leave it in this way.

Line 204: "Eastern" should not be capitalized.

We have modified this.

Lines 204-206: Wording awkward. Rephrase.

We have simplified these sentences.

Line 212: Suggest cutting "exactly"

We have removed "exactly". Thanks.

Line 221: How is it known these are contourites? By reference or perhaps appearance in the seismic profiles?

We have added the relevant reference "Mulder et al., 2019", demonstrating the presence of contourites in this area.

Line 234: Justify or cut "spectacularly".

According to your comment, we have removed this word.

Line 237: These are only "giant features" if they are being described as "pockmarks". However, other somewhat similar submarine depressions in carbonate strata which have been described as sinkholes (i.e., dissolution features) are much larger. Land, L., Paull, C.K., and Hobson, B., 1995, Genesis of a submarine sinkhole without subaerial exposure: Straits of Florida, Geology, v. 23, p. 949-951.

Yes. We have changed pockmarks to "submarine depressions' in the results.
We have changed the title and the text of this manuscript according to your comment.
The use of "sinkhole" starts in the discussion/

Line 241: Assume d (lower case escarpment) is the distance from the 4 km isobath?

Yes. We have added the meaning of 'd'. Thank you.

Line 244: Cut "therefore"

Done. Thank you.

Line 245: Change “is proposed” to “is discussed” or “is considered”

We have written ‘considered’.

Line 248: Change “around 7 km southwards the pockmark 2” to “_7 km south of the pockmark 2”.

We have changed it.

Line 248-249: Suspect “north” should be changed to “northside”? However, this lineament is not particularly convincing. Is this important? If not cut.

It is part of the description. We would prefer to leave it. We have changed to “*northside*”.

Line 249: Second mention of the depression which apparently Mulder et al., 2019 interpreted to be plunge pools. At some point should indicate how those depressions differ. In particular, why they are not pockmarks or sinkholes?

They are sinkholes that are reused and excavated by turbiditic flow. We leave this for discussion.

Lines 252-253: Suggest changing “than 2, 4, 6, and 7. We so call these pockmarks, inner pockmarks” to “: : : so call these inner pockmarks”.

We have added “so call these inner pockmarks”.
Thank you.

Line 253: Cut “comprise”

We have deleted this. Thank you.

Line 255: Suggest changing “within” to “near”

Within has be changed to “Near”

Line 260: Redundant with lines 256-257.

We have deleted the redundancy expressed by the following words “Pockmark density is maximum in this area”.

Line 266: This heading does not seem to be a good fit to what is in this section? Consider renaming it.

We have renamed it to “seismic profile analysis and pockmarks”

Line 268: Cut “geological”

We have deleted this word.

Lines 268-279: Wordy- cut down.

We have simplified the sentence.

Line 272: Change “consistently” to “consistent”

We have changed it. Thank you.

Line 286: Suggest cutting “signal”

We have removed “signal”.

Lines 287-290: Very complicated sentence. Reword.

We cut the sentence in two sentences.

Lines 287-290: Is “brittle-stylized” a term other workers have used? If so reference it.

To our knowledge, no.

Line 291: The word should be “diffuse” rather than “diffusive”.

Sorry about that. We have changed to “diffuse”.

Line 291: However, the conical area of high amplitude reflections between 6.4 and 7.0 sec TWT do not seem to be diffuse. Instead they show nearly horizontal layers suggesting they are associated with fill within a hole.

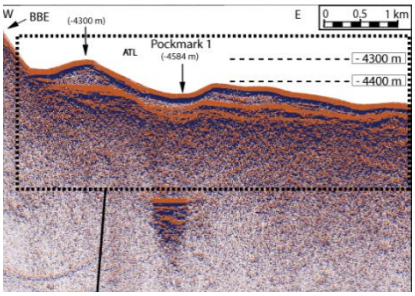
We observe they are diffuse on figures 3b and 3c. However, they are sharply horizontal layers on figures 3c and 4c that are based on BBE-perpendicular seismic line.

Lines 292-294: Meaning of sentence is unclear? What does the depth of the water tell one about the subsurface processes?

This means that the observed features are not related to the vertical distance between the surface and the observed features. This suggests that the distance to the surface is not a main controlling parameter, therefore arguing for subsurface process. We have modified the sentence to clarify things.

Line 299: Are the reflection amplitudes here anomalously strong? Frankly, it does not look like the reflections in this buried conical filled looking feature is distinctly stronger than the laterally continuous horizons further to the east?

We would prefer to maintain that the reflection amplitudes below the depression 1 are abnormally strong. However, we may not catch what you are pointing out.



Moreover, is there a phase reversal associated with the strong reflector that marks the top of the filled conical depression?

Thanks for this question. We do not observe it. We have written what we have observed.

If this depression is cut into cemented early Cretaceous or even Jurassic limestones, they might not produce identifiable laterally continuous reflections.

Indeed, they did not produce any identifiable laterally continuous reflections (figure above).

Also worry that the squiggly reflectors near the base of the escarpment identified as high amplitude anomalies in 4b, 4c, and 4f are over interpreted.

Absolutely. We assume this "over-interpretation". For this good reason, we have left the figure 3 without interpretation i.e. leaving the reader making its own opinion. It is a kind of luxury we offer. ☺

Are they out of the plan reflections coming off the edge of the platform? Drawing faults separating them is purely interpretation.

Absolutely. We assume this "over-interpretation". For this good reason, we have left the figure 3 without interpretation i.e. leaving the reader making its own opinion. This "over" interpretation does not have any impact on data provided in figure 3.

Line 302-303: While it seems reasonable that these may be contourites, is it actually known? For example, have they been sampled? If not, build a case as to why they are being interpreted as being contourites.

Here is the answer, line 235-237 on the initially submitted manuscript : "Based on the analysis of bathymetric maps, the Drowned Barrier Reef (DBR), the Exuma Canyon (EC), the Samana Reentrant (SR), the Exuma Valley (EV), the Exuma Plateau (EP), the South Exuma Plateau Valley (SEPV), the Crooked Canyon (CC), the BBE, the *plunge pools*, and the contouritic deposits have been named consistently to Mulder et al. (2019) (Fig.1b)"

Line 303-304: "This depression is bounded by at least four anthithetic curved normal faults and shows a chaotic/disorganized facies in its center." These are not at all clear in figure 3c? Fear that this is over interpreted in the line drawing of figure 4c.

We agree, for this reason, we have provided the original seismic profile (Fig. 3C) and interpreted section (Fig. 4C). Usually, in seismic profile analysis, scientists superimpose their interpretations on the seismic profile. We do not appreciate this. Consistently, we propose much more finesse in the interpretation than other authors do, here in providing gross data.

Moreover, does this fit under the heading of Contourites?

The depression #1 interacts and probably destabilizes contourites. For this reason, we chose to name this heading "contourites and depressions". We have changed the subtitle in consequence.

Line 307: What is the vertical exaggeration?

The TWT(s) is given in Y axis. The vertical exaggeration is around 2.5. We have added this to the figure caption.

Line 308-311: Why is this not shown? This needs to be supported with an image of the purported plume and a description.

This has not been added because of the absence of plume. This will lengthen the paper adding a "new figure". However, according to your comment, we have provided this image in appendix.

Moreover, the wording of the whole paragraph is weak. Why is it important to state the time it was seen when there is no way to figure out where the purported plume was located? Even less useful is to state a specific time when nothing was seen.

This is needed for future oceanographic missions (the next data that will be acquired in 2023, 2030, 2050, we never know). Scientists in the next decades have to know "exactly" ☺ what, when, and where data have been recorded. Digging through 1980's data, sadly, we found that such details were not reported.

Lines 314-324: Redundant - This has all been said before.

We simply comment the figure 5a where something "visual" and quantitative is proposed. It is a kind of reminder before going through the details.

Lines 326-328: While there are two lines on figure 5C, it is not clear what data they are fitted to?

We have added "**dotted lines indicate two possible relations fitting data"** in the figure caption.

The header indicates that this a quantitative section.
Not described in the figure caption.

We have added "quantitative data" to the figure caption.

Line 333: By inspection, this looks like a nominal correlation. Give the r-squared value.

We have added the r-squared value.

Line 341-348: Except for describing these depressions as pockmarks, no data has been presented that explicitly indicates these are fluid escape features.

We have renamed them “submarine depressions”.

Line 349: Here the “shape” of the BBE is mentioned. While some reference to steepening of the BBE has been made, how the sustained high slopes on the face of the escarpment above should be added to the Introduction. Thus, basal erosion is one way to steepen the slope and makes this some of the boldest topography on Earth.

According to your comment. We have added this point in the introduction.

Line 365: Cut “genetic”.

We have removed “genetic”.

Line 367: Suggest changing “located” into “cut”

We would prefer to keep “located”. “Cut” seems interpretative in the way we understand it.

Lines 367-368: Suggest changing “Thanks to the high quality of the acquired data, we here” to simply “We”.

This has been modified.

Lines 368-369: Apparently an attempt to link the high-amplitude seismic anomalies to “fluids” is being suggested. While not stated, the inferred fluid is gaseous gas. However, nowhere previously in the text has such a link been explicitly developed.

We did not proposed that is gas at this stage. We also link this anomaly to (i) “buried caves system” such as recognized in Lu et al. (2017) an (ii) seismic artifact.

Line 369: While figure 3a, shows a box that outlines what is supposed to covers the conical filled feature with higher amplitudes, figure 3c does not extend to this depth.

I do not understand this point. The figure 3c extends to this depth. However, there is an additional zoom at the bottom of the figure 3c.

Line 380: Replace “coherent” with “consistent”.

This has been modified.

Lines 380-381: Previous sentence has the fluids rising (“pop up”) while draining suggests they sink.

We have modified the sentence.

Lines 384-385: What is a “plug scale”?

We have modified in "at the petrophysical sample scale (cm-scale)"

Lines 374-386: This is rambling. Can be shortened to two simple points- fractures increase permeability and this area can be inferred to have more fractures because of its structural setting.

We have also the "dissolution" process enhanced by fresh surfaces. We would prefer to leave it as it this.

Line 388: Cut "succinctly". Not only is it irrelevant, it highlights that this text is not succinct.

We agree. We have removed it.

Line 390: Unclear how do the depression depths differ?

Plunge pools are deeper than the studied depressions for similar diameters. Our idea is that turbiditic flow into the canyon probably enhanced the depression depth (preexisting sinkhole) by physical/mechanical excavation.

Line 387: What is the diameter of the purported plunge pools?

Similar to sinkholes (around 1 km)

Line 387-393: "Plunge pools" - This highlights the danger of using a process related term to describe a feature. Come out and clearly state that the features previously described as plunge pools, may not be plunge pools. However, the mechanism that is inferred here is suggesting that they are not pockmarks either, but sinkholes instead.

We agree. We have modified the whole paper in consequence.

Line 391: Why is this only a "partial explanation"?

We changed to "probable". Thank you.

Lines 391-392: Unclear what "static emplacement into the canyon (through times)" means?

Permanent.

Lines 392-393: Why is the structural control necessarily needed? Also, "structurallycontrolled" or a similar phrase is inserted in several places earlier as a modifier, where its appropriateness is in question.

We have removed it. That was not useful here.

Lines 395-396: The observation really is that these depressions can occur with or without a sediment cover, but are more common where it is absent. It does not necessarily mean that the sediment cover "did not inhibit" fluid escape, if there actually is fluid

escape. Reword.

The contourites only collapsed several times above the sinkholes. We have changed the text accordingly.

Line 396: Cut "piercing".

We rephrased it.

Line 397: Replace "number" with either "density" or "frequency".

We changed it.

Lines 399-403: Meaning unclear?

We have rephrased the whole paragraph to clarify things. .

Line 402: Is it just contourites or any fine-grained sediment?

We have removed this part of the text to focus our discussion on sinkholes.

Line 402-406: Unclear what the shape implies about the bottom current?

Pockmark shapes can be modified by bottom currents (e.g. Andersen et al., 2088; Michel et al., 2017). This is not the case here based on their elongation ratio. We have modified the text in consequence.

Line 404: I believe that at these depths the seafloor in this location is covered by northward flowing Antarctic bottom water, not the North Atlantic Deep Water. Check it.

Based on Lee et al., 1996, it seems that the WBUC is flowing southwards in the area.

Lee, T.N., **Johns, W.E.**, **Zantopp, R.J.** and **Fillenbaum, E.R.** (1996) Moored Observations of Western Boundary Current Variability and Thermohaline Circulation at 26.5° in the Subtropical North Atlantic. *J. Phys. Oceanogr.*, **26**, 962–983.

Lines 408-410: Unclear what type of sedimentary body might be related to the "the origin of the storage and release of fluids"?

We have added (e.g. channels).

Line 414: Sentence makes sense if "ones" is cut.

We have deleted "ones".

Line 416-417: First is there any indication of overpressure? If there is, a case for it has not been developed. However, if there was actually overpressure, is this statement about the size of the depression correct anyway? Moreover, if these are collapse structures, is there any reason to infer overpressure?

That's true. We do not have evidences of fluid overpressure. We have specified this.

Lines 420-425: This calculation might estimate the depth of the horizon, but it is rather disconnected to a credible argument that there is over pressure or not at this depth. Moreover, the high permeability of these carbonates especially if they are actually fractured as argued, makes it very doubtful this is an environment is susceptible for overpressured conditions.

We have removed "overpressured". We have previously proposed that this anomaly could be similar to the "buried cave systems" (Lu et al. 2017) or simply a "seismic artifact".

Line 434: Do not have access to this paper now. However, question whether the Walles et al., 1993 reference states that the well encountered fresh water or that the well encountered strata that showed signs of fresh water diagenesis. These have rather different implications.

According to Walles et al. 1993. "*Evidence of required fresh fluid flow demonstrating a direct relation with surface*" (based on temperature).

Line 436: Why would fresh water sink anyway? Why isn't it seawater that is the starting fluid which

This is based on observations (Walles, 1993) in a borehole drilled into the great Bahama Bank. Freshwater has been recognized down to 3600 m. Hence, either freshwater or mixture of freshwater and seawater (Paull and Neumann, 1987).

Line 448-450: If this water is moving laterally through the platform why not just escape through conduits along the platform edge.

Because brines are denser than seawater: They also move downwards. Moving Laterally + downwards = trapped into the bench.

Not clear there is a reason to develop overpressure that than causes it to be "episodically expelled upward though the hemipelagic cap.

We have removed the "*overpressure*" part.

Line 429-458: This is paragraph and figure 7 is a somewhat garbled and incomplete mix of pieces of the literature that are relevant to fluid evolution in the platform. However, it is not an accurate and systematic review of the processes. It has also strayed a long way from the existence and morphology of the depressions. Should simply be cut and focus on the things that can be observed in the data.

We would love to conserve this sketch, which constitutes an overview of the fluid circulation in the Bahamas - Florida platform (such as in *Paull and Neumann, 1987*). Data, literature and speculations (we are in the "discussion" part of the paper) have been synthetized to enhance the scientific community discussions. Anyway, we have added and assumed

"speculation" in the text (only discussions) as well as we have double-checked the used references.

Line 461: In detail, the lack of water column acoustic anomalies does not actually mean that no fluid is coming out, it just implies that **the fluid is not gaseous gas** or in **adequate concentrations to be detected**.

We have added these alternatives.

Line 463-464: Of course fluids are present in these strata. The question is what the fluid is and whether gaseous gas was present. However, a convincing case that there in any significant quantities of gaseous gas has not been made in the manuscript.

According to your comment, we have removed this part of the manuscript.

Lines 460-499: This section seems to be almost entirely speculation.

According to your comment, we have removed this part of the manuscript.

Lines 502-515: If one simply replaced the word "pockmarks" with topographic depressions, the essence of this part of the conclusions are generally supportable.

Done

Line 517: Do not believe that this circulation is a proper use of Kohout convection.

We have removed this.

"Kohout convection is a large-scale and long-lived groundwater flow system in the margins of steep-sided active carbonate platforms. It was first postulated to occur in the subsurface of Florida by Francis Kohout in the 1960s. The flow is driven by buoyancy arising from subsurface differences in salinity or temperature. Temperature differences alone drive Kohout convection in isolated platforms. Cold, dense seawater surrounding a platform at depth migrates inward, displacing warmer pore waters at the same elevation. This inflowing density current is in turn warmed within the platform and is buoyed to discharge on the platform shelf or margin. The result is a giant convective half-cell of circulating seawater occupying the platform margin. In carbonate shelves, where regional meteoric groundwater flow may be present, the meteoric water mixes by dispersion with the convecting seawater, resulting in increased buoyancy which enhances the flow rate"

Lines 516-526: This section of the conclusions would need some improvement. That a denser fluid is involved seems likely, but the description of its evolution is rather simplistic. However, you can simple reference work which suggests evolved dense fluids exist within the platform which may flow out in this area. However, that there are high pressures expelling fluids here is a big stretch. Also, the description that has been made suggests these are dissolution features, which in carbonate rocks are called sinkholes.

We have removed "high fluid pressure".
We have renamed sinkholes.
The conclusions have deeply simplified according to your comments.