Dear editors and reviewers,

We are very grateful for all your comments that helped us to revise and improve our manuscript. We took all comments into account. We also used the help of a professional language editor to get rid of language mistakes.

We hope that you agree with us that the manuscript improved in a way that it can be published in SOIL. We think that this is an important study to raise the awareness of sediments as understudied source for soil carbon.

Best regards

Axel and Fabian on behalf of all co-authors

Revision reply 2

Editor comment

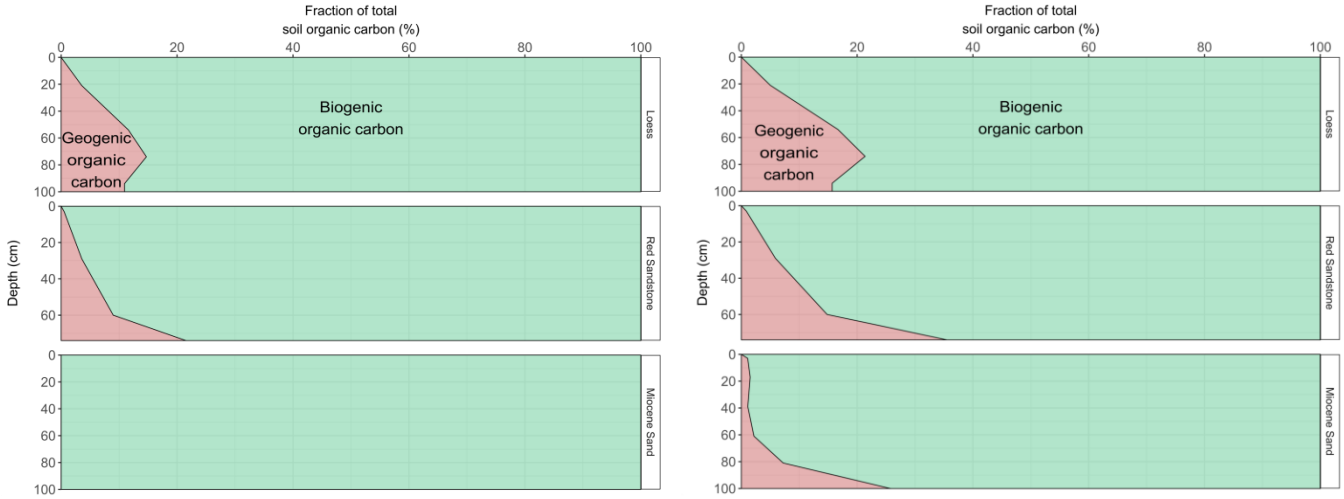
I think that your determination of the GOC contribution at depth is highly questionable for two reasons:
1) the artificial setting of the border of transistion from soil to sediment at 1.5 m (why didn'y you use the 14C measurements for this?)

-Thank you for pointing to this issue that require claification. The transition setting at 1.5 m has no effect on our calculated contribution of GOC at depth. The calculation of GOC was based on ^{14}C ages in the sediment cores (starting at 1.9 m depth). There is no clear boarder between soil and sediment. During soil sampling we still found pedogenic influence down to maximum depth of the soil profile. That is why we choosed to assume a boarder for the soil-sediment transition at 1.5 m depth. Please not, this transition was only used to compare **OC stocks** in the discussion. In l. 175 we stated that this transition was used to compare contributions from GOC. This may be confusing because thats only true for stocks and will be revised.

2) the use of literature values for 14C ages for DOC from subsoil for the quantification of GOC - this is highly uncertain - firstly 14C ages of DOC do not represent the SOC stored in solid form and second, literature values may not correspond to the study site
It might have been better to use the youngest and oldest age possible for biogenic SOC (i.e. recent to 10000 years) to express the uncertainty of the results

- Yes, we agree with you in that this is a source of uncertainty because there is no analytical method to differentiate between biogenic and geogenic OC. We chose the range of 1,000-4,000 years because we concluded that this is a reasonable and a kind of worst case range of the mean 14C age of biogenic OC in the sediments. If we would use 10,000 yrs, this would mean that OC in the sediments would be derived only from biomass that was produced in the very beginning of pedogenesis 10,000 yr ago with no contribution of younger OC. This is unrealistic since sediments are no closed systems and will receive OC input if there is vegetation and pedogenesis (thus throughout the period of 10,000 years). Similarly, if we would choose the biogenic part of OC in the sediments to be only 100 yr old: DOC

measurements in the subsoil show 14C ages of several 1000 years. Surprising enough, the assumptions on the age of biogenic OC has little influence on our conclusions on the GOC fraction. Assuming that biogenic OC in the sediment has a mean of 10,000 yrs would not change a lot as can be seen in the following comparison. We took an average biogenioc OC age of **10,000 yrs** in the left Figure and a compared it to the mean age of **2,500 yrs** (middle of the 1,000-4,000 yr range) in the right Figure as we used in the manuscript:



Only the Miocene Sand with its low contribution from GOC would completely loose this geogenic fraction, while the magnitude for the Loess and the Red Sandstone only slightly decrease. We added this graphic to the supplement and a discussion about this uncertainty to 4.1:

4.1 “Generally, our calculations on the GOC fraction in the sediments are based on the assumption that biogenic OC in the sediments is not older than 4,000 yrs BP on average. And we also excluded the influence of a biogenic OC fraction that derives from soils that developed before the latest glacial period. Thus, there is uncertainty of a biogenic OC fraction in the sediments since it is unknown when biogenic OC entered the sediments. We assumed a mean age of 1000 to 4000 years based on DO14C data that was leached from the soil. Nevertheless, even with an assumed age of 10,000 years for the biogenic OC fraction, the highest possible contribution was 15 % for the Loss (94 cm depth) and 22 % for the Red Sandstone (74 cm depth) (Fig. A5). A mean age of 10.000 years would be an unrealistic assumption since sediments are open systems and may receive OC input throughout the pedogenic period if vegetation is present and not only at the start of pedogenesis.”

Reviewer 1

The whole manuscript has intensively been checked for language and grammatic (also regarding all of your grammar/wording hints), so there are a lot of changes regarding these shortcomings in the new manuscript (see “marked manuscript”).

l.18 this sentence is not necessary in the abstract and implicit from l 16.

Thank you for this hint. However, we think that this sentence is necessary because otherwise one could think that GOC (mentioned in l. 16) could be the geogenic **and** the biogenic part of OC that is

stored in sediments. This has already confused many readers of the manuscript during preparation so we decided to give a clear definition right from the start.

l. 30-31. These statements of the GOC contribution to SOC should be phrased depth explicit.

We added a range of possible contributions from GOC for this depth increment instead of a mean value:

"Its possible contribution to subsoil OC stocks (0.3-1.5 m depth) ranges from 1 to 26 %in soil developed in the Miocene Sand, from 16 to 21 % in the Loess soil and from 6 to 36 % at the Red Sandstone site."

l.32 this interpretation is speculative and should be removed. Subsoils without GOC show also depth trends and you did not evaluate the overall strength of GOC to these 14C depth across a wide enough range of soil types. In consequence, l. 33-34 need revision too. (Dot missing in l. 34)

Yes we completely agree with the reviewer and point out in l. 35. GOC "may partly explain the strong 14C increase in subsoil". Thus, we agree with the reviewer that there are also other reasons for this depth gradient. We revised the section to make clear that the main focus of our conclusion is, that it is possible to influence ages of OC in subsoils, but not solely explaining the strong increases in 14C ages. We would keep the conclusion in l. 33-34. but rewrite it, because it should become clear at which sites GOC could become important. We changed the sentence in 33:

"This is could be particularly important in young soils on terrestrial sediments with comparatively low amounts of OC, where GOC can considerably contribute to total OC stocks."

l.49. grammar/wording
l. 51 grammar/wording
l. 59. grammar/wording
l. 64 grammar/wording

- We completely revised the manuscript with the help of a professional language editor to get rid of grammar and wording mistakes

l.77-78. This sentence is only partly correct since human activities cause much more soil and sediment redistribution than any natural process. So I would limit your statement to natural deposition processes, and for those specifically again on which soils have developed.

- Yes, we agree with the reviewer in that human activities cause much more soil and sediment redistribution than any natural process. However, this sentence is about the original deposition of sediments and not about re-distribution by humans. Even if sediments are re-distributed by human processes and soils developed on this disturbed material, they still have been deposited > 50,000 yrs BP without major impact of humans.

l.81-82. This sentence is out of place and breaks the flow of the paragraph.

- We deleted this sentence

l. 84-85. This statement is in parts speculative. GOC is resistant under the conditions of deposition, but you cannot assume much from that under any other (in particular surface) conditions.

- Yes, thats true and we agree. Yet, we think that this is a valid assumption and in the following we concluded that it coud be degraded when the circumstances change (l. 85 ff) due to the input of fresh water, air and microorganisms from above for example.

l.88 grammar/wording

l.91-93. Give this sentence a direction. Are you referring here to priming effects?

- Has been changed accordingly:

"If GOC is degradable in OC-poor sediments or sedimentary rocks has not been investigated so far but might be different since the amount of microbial biomass mediated by the OC content can also drive microbial respiration (Colman and Schimel, 2013). Therefore, these sediments might have less microorganisms, that could also be spatially separated from the GOC, which might hamper its respiration."

l.95 grammar/wording

l. 101-104. Question 1) and 4) seem related/repetitive. Combine

- Thank you for this comment. We guess, the questions were not formulated clear enough. Question 1 refers to the amount of OC in subsoils in comparison to the amout of total OC in sediments. Question 4 refers to the contribution of geogenic OC to subsoil OC. We made this more clear and now write:

- Question 1 refers to the amount of OC in subsoils in comparison to the amout of total OC in sediments. Question 4 refers to the contribution of geogenic OC to subsoil OC. We made this more clear.

"Our main research questions were i) what is the relation between the amount of OC in the soil and in the sdiment? ii) is OC in sediments 14C free and how much is really geogenic? iii) will sedimentary GOC be degraded? and iv) how much does GOC from the sediments contribute to soil OC?"

l. 145 grammar/wording

l. 160 name again what acid at what concentration

- Added "1 % HCl "

l. 177 this "transition to sediments" does not match to what you show in your profile pictures as beginning C horizons.

The transition between soil and sediment in the profiles was gradual and we detected pedogenic influence also below 80 cm depth as indicated by the "v" for the C horizon. The visible „Cv" horizon

represents the transition between soil and sediments, but not the start oft the sediment.

l.178 grammar/wording

l. 214-215. Revise the added sentence for clarification. Maybe add "…degradation rates at lower temperatures".

- Was changed accordingly.

l. 213. What was the incentive to incubate the crushed sandstone for 63 days, but the non-crushed for 50 days?

- There was no intention to incubate for different time periods. It was just due to methological circumstances.

l. 225 unclear what you mean with "poured bulk density".

- We added the explanation:

"A water content corresponding to 40 % of the water holding capacity based on the poured bulk density, determined by filling the loose material into a defined volume and measuring its weight, was adjusted"

l. 293-294. This strange finding is interesting, but seems to be an outlier when looking at figure 2? Has this measurement been confirmed? Or checked with measurements of a similar depth for this sample? It seems to drive your OC stock calculation in table 1 and needs to be confirmed and checked very carefully.

Unforntunately we are not sure which data point(s) you refer to. Every measurement of OC in the sediment was based on samples from the same depth but different cores to check for variability. Unfortunately, we only had one Loess core so the depth variability could not be confirmed with two cores in this case. However, the measurement in 4 m depth could be confirmed visually. The sample from this depth showed a very dark colour, pointing out to its high OC content. We added a sentence in 3.1:

"This was no outlier because the high OC content could be confirmed visually by the very dark colour of the sample"

We further added a sentence in 4.1.1:

"For example, the very dark sample in 4 m depth with its high OC content points out to sedimentation circumstances that favoured the accumulation and preservation of OC."

l. 287-311. Figure numbering refers to the former version.

- Will be changed. Thanks for noticing.

l. 302 grammar/wording

l.333-334. This statement is discussion and interpretation, not results.

- Deleted from l. 333 and added following sentence to 4.1.1:

“Furthermore, the modern like 14C signature in 21 cm depth could be due to the plough layer at the Loess site mixing up the upper 30 cm.”

l.339 grammar/wording

l. 326-353. Also in this section the figure numbering seems to refer to the old MS version. Please check throughout the MS that his is addressed. The same is the case in the next section, I stopped checking after that one.

- Thank your. All figure numbers have been checked.

l. 375 grammar/wording

l. 378-380. This sentence is important but seems to be out of place here. Better placed in the methods? Besides, you state in your responses that O2 was >20% throughout the incubation experiment. How have you checked that ? Related to this Figure A4 panels are not well described. To me it does look like you have CH4 production increasing over time. In this regard, I would then make sure to not use the 553 days datapoint in the manuscript (Figure A2) for any interpretation or calculations (it is also not constrained like the other points shown in Figure A3).

- Thank you for this suggestion. We agree with the reviewer that this sentence would also fit into the materials and methods section. However, we decided to keep it in the result section since we are referring to the measurement results of the incubation. In l. 378-380 we stated that CH4 development remained on a low level, indicating no oxygen limitations.

Concerning your question about O_2 concentrations: We did not measured O_2, but we had a large headspace in the incubation vessels varying between 4,200 and 4,900 cm^3 and additionally a rather low microbial activity in the vessels (very low mineralisation rates). Furthermore we started with 20 % O2 and measured CO2, N2O and CH4. Therefore we assume that there was no oxygen limitation. So it was no direct measurement but an indirect conclusion. At least there was a slight slight increase in CH4 over time but only for the Red Sandstone samples. The ration between produced CH4 and CO2 was however always below 0.03 indicating that the incubation was mainly aerobic.

We will remove Fig. A4 from the supplement, because it does not contain any further information.

l. 469. A reason why an annotated photo figure of the cores would be important (see comment at “figures”).

- Yes, we agree that a photo would be nice. However, since the Loess and Miocene Sand cores were obtained in closed tubes we could not make a photo of the core material. We could just see the

material when we selected samples from the inside. We added a Fig. A6 with pictures from the Red Sandstone samples in the supplement.

l.470-471. grammar/wording

l.474-478. This statement needs a proper reference. DOC infiltration rates have not been measured in any of the substrates.

Thank you for this valuable comment, we canged the sentence accordingly to:

“A loosely bedded sediment like the Miocene Sand with extremely low concentrations of OC could be more prone for infiltration of biogenic OC and dilution of GOC.”

Because we want to draw the attention to the low OC contents in the sediments and not so much towards infiltration rates in different sediments.

l. 515-549. What are typical subsoil temperatures here? MAT? And its not only the temperature. Its also aeration, water content, structure etc. So I don’t think your experiment can reveal too much on the decomposability of deep C in situ but you can compare to other similar experiments or what the mineralization rates would be under conditions similar to your experiments. Revise section accordingly and reduce to avoid speculation.

- We added a reference for typical subsoil temperatures in 4.2

“For subsoils with comparable climatic conditions, Wordell Dietrich et. al (2020) found seasonal temperatures in 150 cm depth ranging from 4 to 14.4°C over a 2 year period.”

In l. 212 ff (M&M) we already described the experimental design and mentioned that we want to assess the „potential stability of OC“ and not the stability under in situ conditions. What we did was to compare the incubation experiment with other experiments under similar conditions in l. 526 ff.

l. 586. Remove “long-term” since you work without the uncertain 533 days datapoint, no?

- Was removed accordingly

l. 612-613. grammar/wording

l. 631-632. This 30% statement is speculative and unnecessary. Remove sentence.

- Was removed accordingly

l. 653 grammar/wording

l. 655 grammar/wording

l. 677. Delete “seem to”

- Was removed accordingly

l. 678. Add a sentence that your experiment shows that the GOC is degradable under the conditions you created during your incubation, no?

General comment discussion: The discussion is quite long. That's OK as it is mostly data focused. However, I am missing a bit of a critical view on the assumptions behind the 14C signatures used to calculated the biogenic and geogenic. Uncertainties are discussed here and there a bit but there are some really big assumptions here with DOC and root exudates being involved over assumptions on what age range to expect from biogenic OC and so on. A critical view on this before going into all the data interpretation details would be helpful for readers to get a better feeling on the uncertainties surrounding the data.

- Thank you for this important note. We added a section at the beginning oft he discussion regarding the unertainty of our underlying assumptions with 14C (at 4.1). Also see: response to editor comment 2)

General comment conclusions: I like the conclusion a lot. It really focuses on what the data can clearly show. It makes me think however, why all the data from the very deep cores was discussed in such great detail in the first place. Frankly, the manuscript would profit on more focus on the soil part, and not so much of the rather (speculative) mineralization or origin discussion for the deeper sediment cores (I see this as rather supplemental).

- Thats true. The incubation experiment has a long part in the discussion. We will shorten the discussion for these parts.

Comments on figures and tables:

Figure 1. Reformat Figure. Replace scale bars and signs with a digital version. Write horizon labels either on the left or to the right but not central into the image. Cut image to focus area you want to display. Use USDA or WRB system of horizon classification, not KA5. Besides, I cannot follow the classification easily and also some of the interpretation later in the text when relating to it. Some examples: Al horizon features at 66cm, or even 82cm depth (image A). How is that possible? If there was no disturbance in the forests, where is the rather big M horizon coming from (image B) which is also not discussed anywhere. Why would the sandstone profile (image C) have the most shallow development depth? Furthermore, since your MS is about long sediment cores, please add annotated images of the cores too (in the supplement), especially as you stress that the sediments were homogenous for 10m.

- Thank you for this detailed analysis of the soil profiles and your suggestions for reformatting. In general Fig. 1 was added to give a short overview about the developed soil profiles. We think that a complete reformating of Fig. 1 as suggested would be without substantial benefit since we are not discussing the soil profiles in detail. The M horizon from 1B propably derives from erosion of soil material down the slope. Unfortunately, we can not add images of the loess and the sand cores since

they were obtained in closed cylinders and we only removed material from the inside. We will add pictures from the Red Sandstone cores in the supplement. We furthermore described the classification of the soil in more detail:

"The soil is classified as a Folic Brunic Arenosol according to the World Reference Base for Soil Resources (WRB, 2006). The sediments were loessic deposits (Weichselian Glacial) that have been under agricultural landuse for the past decades, 30 km north of Göttingen (51°48.101 N; 9°58.002' O), referred to as "Loess",and terrestrial sandy deposits from the Miocene (Neogene formerly named Tertiary) in a European beech forest 13 km south-west of Göttingen (51°28.673 N; 9°45.323' O) referred to as "Miocene Sand". The respective soils have been classified as a Haplic Luvisol and a Dystric Chromic Arenosol accordingly. "

Figure 2. Some of the panels have weir line features at the x axis and y axis zero lines. Remove them. Further, red sandstones cores seem to be quite different from each other. This contradicts to your statements of the homogeneity of the core samples. How is this addressed?

- Changed Fig. 2 accordingly. The inhomogenity of the Red Sandstone samples was adressed in l. 305 („Unexpectedly high amounts of inorganic carbon IC were found in parts of the Red Sandstone, indicating the presence of calcareous deposits in this terrestrial material (Fig. 1 c)"). The statement of homogenity does not mean that the cores did not show any variation with depth. There were calcareous layers in the Red Sandstone and the Loess was very unhomogeneous overall. But it was more or less the same material down to 10 m depth. We thank the reviewer for addressing this important point and now describe this incomplete homogenity in more detail in the result section in 3.1:

"Despite having the same material down to 10 m depth at each site, there were still some inhomogeneities visible and also measurable. This was especially true for the Loess and the Red Sandstone."

Figure 5 essentially shows the same as Figure A3. I think you can remove Fig. A3

- You probably mean Fig. A4 (A3 is methane production during the incubation). A4 was removed.

Table 2: Make sure the mineralization rates using the linear model are done based on the 63 day timeframe of the experiment and not include the uncertain extrapolation to the 533 days. Unclear from Fig A2.

- In Fig. A2 no interpolation model was used as it is mentioned in the figure caption. It should not be confused with the 63 day linear interpolation used for Fig. 4.

Review 2

Major points to be addressed:

- Is there something known about the origin of GOC in the three different sites (i.e.

buried organic matter / soot / coal / …)? As it is not stated/hypothesized, it makes also

difficult to evaluate the used temperatures (450 °C) for preheating samples to remove OC.

- We do not have detailed information about the origin of GOC in the sediments. Due to their d13C values we concluded that they have a plant origin. And additional measurements (e.g. NMR) revealed iniformation about the chemical composition of O . We added information about the deposition in the site description:

"The sediments at the Loess site were deposited between the last glacial and interglacial periods between 115,000 and 400,00 yrs BP according to Jordan and Schwartau (1993)."

Additionally we added a reference to evaluate the used temperature of 450°C.

- Line 54: "GOC in most cases is devoid of 14C and thus may lead to an overestimation of ancient OC sources although a number of studies showed the importance of root derived, young OC inputs to subsoils." This is quite a fundamental point of your study and could be better stated here already. Suggested: "As 14C has a half lifetime of 5730 years, carbon deposited from the Weichselian and older are depleted in 14C, thereby diluting the overall 14C concentration. Especially in C poor subsoil, where GOC forms a relative larger part of the overall C content, this leads to an age overestimation of relative fresh OM, like root derived components. "

- We added a sentence to make the influence of GOC on 14C concentrations in subsoils more clear: "Therefore especially in OC poor subsoils, GOC may significantly influence and dilute the overall 14C signal."

Thanks for the suggested formulation! But the sentence *„Especially in C poor subsoil, where GOC forms a relative larger part…"* is already a conclusion which we would prefer not to make at this point. Furthermore if GOC forms a relative large part of GOC this would not lead to an *„age overestimation*" of fresh OM but dilute the overall signature of OC which is a difference.

- Line 80: "Thus, using both carbon isotopes can reveal if the OC is a mixture of GOC and OC". It is not clear how δ13C can be used (from the introduction) and more detail how these different isotopes can be used to disentangle the different C components should be added. Above this line it is only made clear why GOC and 14C are important to study.

- We changed the sentence in l. 80 to make it more clear how the d13C signature can be used:

"In addition, $\delta^{13}C$ values of OC in the sediments allow to distinguish carbonaceous with its $\delta^{13}C$ values around 0 ‰ from organic sources with $\delta^{13}C$ values < -22 ‰"

- Line 101-102: Restructure and rephrase questions, especially as question II is fundamental for the disentanglement of geogenic and more recent OC. It is suggested to start with "Is (G)OC free of 14C", than "how much does GOC contribute to

(sub)soil OC?" and "will sedimentary GOC be degraded and/or incorporated in recent

OC"

Changing Question 1 to „Is (G)OC free of 14C" would not be valid, since the geogenic part of OC is by definition free of 14C because it was sedimented more than 50.000 years ago. We would prefer to keep the structure of the questions since the structure of our whole manuscript is based on these questions.

- Line 261-266: This part of the results does not create confidence in your data. First it

is stated all samples were within detection limit (to my opinion an understatement, as

otherwise samples should not be included or represented by the value 0) and next there

is speaking of "random noise". Better to simply state what the mean relative standard

deviation was (or overall measurement/methodological error) and the lowest measured

value (0.04 g C kg-1 soil). Note that mg C g-1 soil and g C kg-1 soil are both used in

the text.

- We changed the first sentence accordinglyto make it more clear what we mean (there were no samples that contained no OC). The „random noise" expression will be changed. We will change all „mg C g-1 soil" to „g C kg-1 soil", thanks for noticing!

"In all analysed sediments measurable OC contents were detected"

"Thus the range from 0.00 to 0.01 mg C g^{-1} soil was assumed to be mean standard error from the measurement"

- You could consider to discuss first the "How much GOC contributes to soil organic

carbon?" before going into the bioavailability of it. This would make the "flow" of the

discussion more logical.

- Yes, we agree with the reviewer that this would also be possible. Still we think it makes more sence to put the degradation part first. Thats because if we want to conclude how much GOC contributes to subsoil OC we have to know how much could have been mineralised. If we would write it the other way around, we would write about the GOC contribution 2 times. First under the assumpion that there is no degradation and then about the contribution when there is degradation.

Minor suggestions for improvement:

Line 22: "this gap" -> this knowledge gap

- Changed accordingly

Line 24: "sedimentary OC" -> GOC

- Thanks for the suggestion, but in this context this would be wrong since we are referring to the bulk OC in the sediment and not just the geogenic part.

Line 51: “an contribution” -> “a contribution”

- Changed accordingly

Line 60: “have been investigated” Missing the results of these studies, probably rephrase.

- Changed sentence to:

“Furthermore OC rich sediments with contents of 2-7 g kg^{-1} (Hemingway et al., 2018) or 28-105 g kg^{-1} (Frouz et al., 2011) have been investigated with regard to the stability of OC in these sediments but with no conclusion for GOC contributions in soils.”

Line 68-69: “more information about the amounts of OC in sediments is needed.” -> “GOC in sediments” or “contribution of GOC in sediments”

- Changed accordingly

Line 74: “hydraulic conductivity” -> “Pore distribution” or “porosity” fits the context better.

- Changed accordingly

Line 127-128: “This means e.g. for a sample increment from 1-2 m, the sample represents the 1.85-1.95 m depth” -> “This means that for example the increment 1-2m is represented by a sample from 1.85-1.95m depth.”

- Changed accordingly

Line 148: “removing carbonates” Same as 14C?

- We deleted the sentence here because sample treatment for 14C is described in 2.3 more detailed

Line 250: “lm” -> “the function lm”

- Changed accordinly

Title 3.1: “…sedimentary and subsoil organic carbon” -> be consistent with terminology. Better to use GOC / geogenic organic C instead of “sedimentary”, especially as “subsoil organic carbon” can be all OC found in the subsoil

- Yes, subsoil organic carbon be all OC found in the subsoil. But that is what we mean in this chapter. We are referring to the comparison between the bulk OC content in the subsoils and the bulk OC content in the sediments with no distinction between the geogenic and the biogenic part.

Line 296/277: Fig 1a. -> Fig 2a.

- Changed accordingly

Line 284 “they all were in the range of C3 plant material. A value above -25 ‰ for the Red Sandstone in 4 m depth can be explained by corresponding high values of inorganic carbon (IC) in this depth” -> better for discussion

- Yes that's true. But we are not discussing the 13C signatures in the discussion section and only use it for the distinction of biogenic and calcareous C. Because the discussion is already quit long we would prefer to keep this sentence in the result section.

Line 308: "Fig. 2 a" -> "Fig. 3a"

- Changed accordingly

Line 322: "Fig. 2 c" -> "Fig. 3c"

- Changed accordingly

Line 424: "the same site assigned the different" -> "the same site and assigned the different"

- Changed accordingly

Line 425: "sedimentary OC" -> "OC"

- Leaving out "sedimentary" in this context could be misleading, since we are only referring to the sediment and not to OC in the soil.

Line 426/427: "…extremely low concentrations of OC is more prone for infiltration of

biogenic OC" Not completely clear what is meant, but probably best to say:"… very low OC

contents increases the relative importance of biogenic C input for the over OC"

- Sentence has been changed accordingly to make it more clear:
"A loosely bedded sediment like the Miocene Sand with extremely low concentrations of OC could be more prone for infiltration of biogenic OC and dilution of GOC."

Line 463: "sedimentary bedrock" Loess is no bedrock, but an (aeolian) deposit or sediment

- changed to "sediment"

Line 523: Not clear what is meant with "a resistant part"

- Changed to:

"Hemingway et al. (2018) found that sedimentary OC directly exposed to the surface in a rapidly eroding tropical mountain area exhibits a considerable mineralisation down to 1 m below the surface also leading to around 30 % of GOC remaining in the soil."

Line 525: "distinguished" -> "Distinguish"

- Changed accordingly

Line 526: "bedrock OC" -> "GOC"

- In this context we are again referring to the bulk OC in the sediment and not just to the geogenic part.

Line 557: "despite differences between sediments" -> ", despite differing between sediments,"

- Changed accordingly

Line 570-571: Combine sentences

- Changed accordingly

Line 572: “high age” -> “high 14C age”

- Changed accordingly