Point-by-point comments to the technical corrections suggested by the Associate Editor Helge Niemann.

p2 line 8, “once” reads as if the oil immediately weathers and instantaneously loses lighter HCs

Reply: We omitted “once” and changed the sentence to: “After exposure to seawater, the heavy oil solidifies to brittle layers because of weathering processes and loss of volatile hydrocarbons.”

p3 l2. unclear. I presume you mean that the stable isotopes of the CH4 within the hydrate suggests a methanogenic origin of the methane?

Reply: Correct, we changed the sentence to “The stable isotopes of methane in gas hydrates associated with asphalt suggested methanogenesis”

p6 l1 second sentence reads odd rephrase to something like “based on video footage, we could only ID fauna to the level of XX” or the like

Reply: We changed the sentences to: “Based on the video footage and studies of the animals on board, we identified the fauna to various taxonomic levels but detailed on-shore studies are needed to fully explore their taxonomy.”

p6 l17. sentence reads odd “flares connected to the seafloor..” rephrase to something like flares/bubbles emanating from the seafloor at depth of up to 3500 m” or the like

Reply: We changed the sentence to: “Gas emissions were recorded as flares with the echosounder from the seafloor at water depths as great as to 3500 m at the plateau-like summit”

p7 l5/6. what is this hypothesis based on?

Reply: We extended the sentence and included a reference to support our hypothesis: “We hypothesize that the carbonates were formed under anoxic conditions in the interior of the rhizosphere, similar to those authigenic carbonates growing in the sediments within the sulfate-methane transition zone at other seeps (Formolo et al., 2004)”.

p8 l4/5, sentence in brackets. Change to “one drop of oil / one oil drop every x-xx minutes”

Reply: We changed the sentence to: “Oil drops escaped the sediments at a low rate (one drop of oil every 1-5 minutes)”

p8 l9/10 unclear what you mean by “fascinating structures”. And, how does this provides insights into mechanisms of oil deposition? Do you refer to the flow structures you mention?

Reply: We omitted the word fascinating and changed the sentences to: “In the area denoted as “fresh asphalts” (Fig. 5B) we observed a variety of structures that provide insight into the flow behavior of heavy oil deposition at the seafloor. Although the extrusion process of heavy oil was not directly observed by us at the seafloor, the resulting flow structures are illustrative.”

p9 l11/12 you mean the worms were invisible for UW video systems?.

Reply: Correct, we changed the sentence to: “However, because of their thin tubes, the tubeworms were invisible for the camera systems during the dive.”

p9 l24. unclear. You saw GH and you assume that GH are not present any more? You mean not outcropping? Did you find elevated gas conc. in the sediments?

Reply: We changed the sentence to be more clear: “On a small 20 cm high and 1 m wide sediment mound we observed a white, hydrate-like texture through a drape of sediment suggesting the presence of gas hydrates but as we did not attempt any sampling, we cannot prove the occurrence of hydrates”

10 l6-8. sentence is incomplete.

Reply: The sentence reads now: “Hydrocarbons analyzed from all gas bubble samples collected with the Gas Bubble Sampler from Tsanyao Yang Knoll, Mictlan Knoll, Chapopote Knoll, and UNAM Ridge were dominated by methane with a C1/C2-ratio varying between 14 and 185 (Fig. 12), the methane stable carbon isotope composition (δ13C-CH4) ranged between -45.1 and -49.8‰ V-PDB”

p11. l 3. “which is a particular type of hydrocarbon seepage” is redundant as you talk about seepage of heavy oil just bevor. It should be common knowledge that oil is a mix mostly consisting of HCs.

Reply: Deleted.

p11, l16. Bending up reads odd. “Doming” might be more appropriate.

Reply: The term bending up is quite common in seismic literature and used by Ding et al. (2010) we are referring to. So we did not apply changes as “doming” is different from “upbending”.

p13, ll3. rephrase, the worms are not growing on hydrate (that would mean that they feed on hydrate), rather on top of it (?)

Reply: We rephrased the sentence as the tubeworms form a cap on the hydrate deposits to: “In our study, we found vestimentiferan tubeworms capping hydrate deposits, which has not been observed before in such a clear association.”

p13, l18. rather use “considers” instead of regards

Reply: Done.

p14, l27/28. The text in brackets reads odd. Change to something like “…discharge rates of heavy oil at the seafloor remain unknown but could, possibly, be in the range of weeks to years”.

Reply: Done as suggested.

P16, l5. This sentence is incomplete

Reply: We made a mistake in the sentence by using “opaque” instead of “transparent” and changed the sentence now to: “Oily bubbles are difficult to identify visually during ascent through the water column, as they can appear as transparent as pure gas bubbles.”

P16, l22ff. This is rather a summery than a conclusion and should be titled accordingly

Reply: Done.