Comments from Andreas Teske

The current version of this manuscript is much improved compared to previous versions from one or two years ago. I noticed that the current version of the manuscript includes a detailed bathymetric map with clearly defined pockmarks, a much-needed improvement over the previous version that contained no bathymetry whatsoever. Also, the concentration profiles are now shown in a high-resolution figure where data points are color-coded by sampling region – a marked improvement over the previous version that showed only linearized functions (in greyscale) and no datapoints at all (and it was all hidden in the supplements, if I recall this correctly). So, I am happy to see these improvements that really make a difference.

We would like to thank Prof. Teske for his insightful comments that helped us improving our manuscript. In our point-by-point responses, we hope to demonstrate that we have addressed all comments and implemented the suggested revisions satisfactorily.

Lines 179ff: I guess that these sediment samples (3 cm^3) were used for methane and CO2 concentrations, as indicated by figure 1C? It would be helpful to mention this explicitly.

We added the information that the 3 cm^3 *sediment samples were indeed used for methane and* CO_2 *concentration measurements.*

Table 1. In terms of fluxes, there seems to be a gap of two orders of magnitude (1 mmol x m2 x d-1 to 100 mmol x m2 x d-1) between low flux seeps and moderate seeps. Is this a "grey zone" where current data are not sufficient to draw a clearer distinction?

Yes, the flux range between low- and moderate-flux seeps represents a conceptual transition zone. We have revised the caption of Table 1 to clarify this point.

In seep cores, do you observe covariance between iron and sulfur or sulfide concentrations in the seep cores, something to be expected since sulfide traps reactive iron and keeps it out of porewater? The manuscript text is specifically outlining the scenario in lines 550 ff, and discusses sulfide mineral formation in deeper sediments and at the SMTZ (below the range of these cores) in several paragraphs that follow; however I did not see any plots examining the Iron-sulfide relationship in any detail. Even the manuscript does not contain solid-phase data on sulfides, the porewater data are available (Fe concentrations in Figure 2h; H2S concentrations in Supplementary Figure S3), a clear case of low-hanging fruit. Other studies have examined the links between Fe and S concentrations in seep sediments (for subsurface cores, see Kars, M., Pastor, L., Burin, C., Koornneef, L.M.T., 2025. doi:10.14379/iodp.proc.385.207.2025; for push cores, see Rochelle-Bates et al. 2024, Doi:10.3389/fmicb.2025.1523696, Fig. S3). To summarize, frequently discussing metals and sulfides in the text calls for checking [and plotting] the data.

We fully agree with this suggestion and have added a new figure showing the relationship between dissolved Fe, sulfide, and sulfate concentrations for each site (see below). The new plot demonstrates that Fe and H_2S *show clear inverse trends in seep-affected sediments, while sulfate generally decreases with depth.*

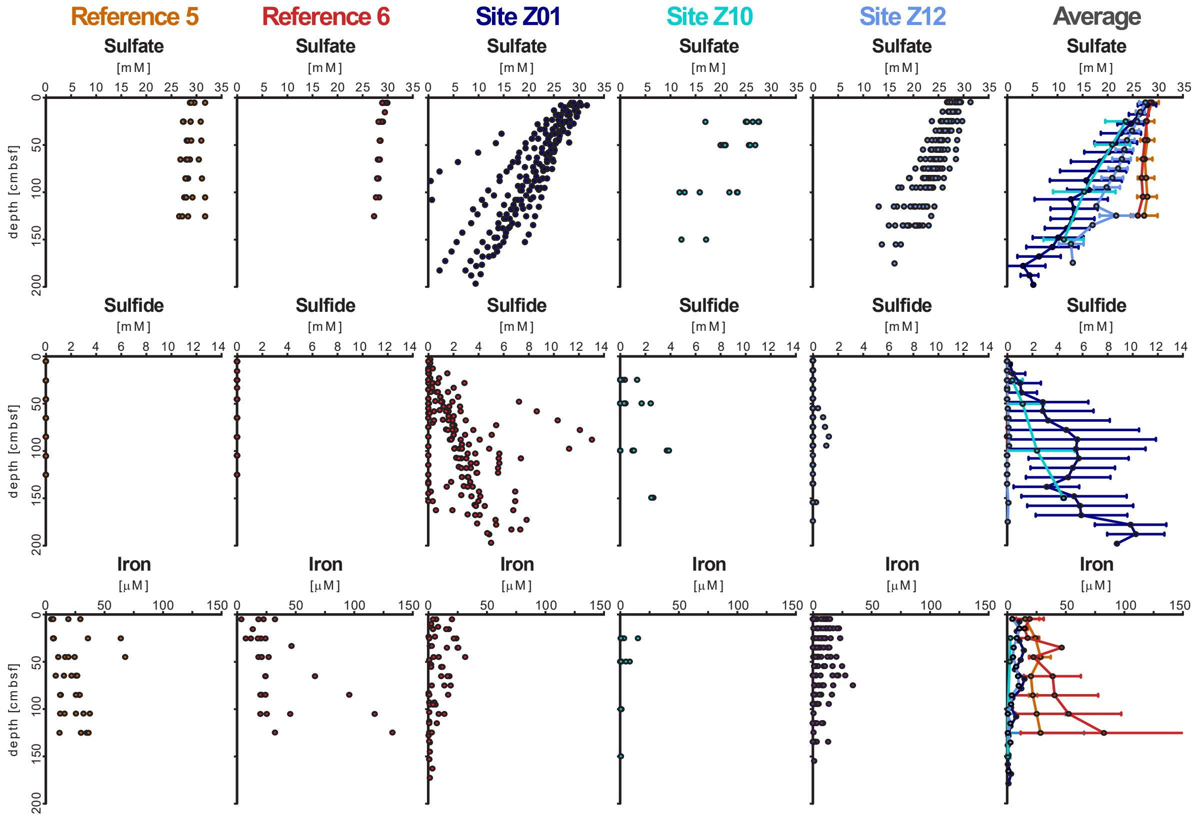

Figure 6. Porewater profiles of sulfate, sulfide, and dissolved iron across five sites, including site averages. In seep-affected cores, iron concentrations decrease where sulfide increases, indicating removal of reactive iron through sulfide precipitation. Sulfate generally decreases with depth across all sites. Error bars represent site-specific averages where applicable.