

Biogeosciences Discuss., referee comment RC2 https://doi.org/10.5194/bg-2021-96-RC2, 2021 © Author(s) 2021. This work is distributed under the Creative Commons Attribution 4.0 License.

Comment on bg-2021-96

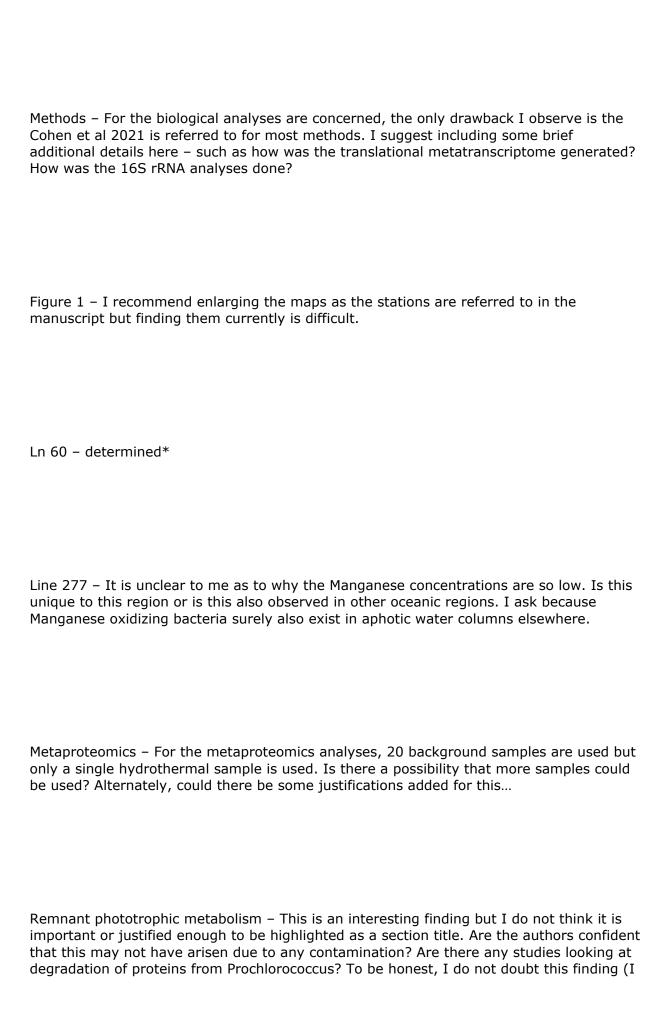
Anonymous Referee #2

Referee comment on "Hydrothermal trace metal release and microbial metabolism in the northeastern Lau Basin of the South Pacific Ocean" by Natalie R. Cohen et al., Biogeosciences Discuss., https://doi.org/10.5194/bg-2021-96-RC2, 2021

In this manuscript, Cohen et al conduct a systematic sampling of different stations in the pelagic ocean along a transect in the south Pacific Ocean to study trace metal distributions and their potential association with microbial physiology. Trace metal concentrations were measured and observed patterns are associated with both ocean scale and local oceanographic and biogeochemical processes. Additional metaproteomic (and 16S/18S rRNA analyses) were conducted to characterize the microbial (eukaryotic and prokaryotic) communities and the proteins. I found the methods to be solid and the paper to be exceptionally well-written and easy to read. I really commend the authors for a very comprehensive piece of work. Overall, in my opinion, this study represents an important piece of work that expands upon the growing body of trace metal studies across the oceans, and specifically contributes to our understanding of the distribution of dissolved metals across ocean depths and regimes, and their association with microbial metabolism.

I do have some concerns/suggestions for improvement that I outline below.

I understand that the authors cannot pinpoint exact sources of trace metals since specific hydrothermal vents were not sampled. This is highlighted in the text very briefly – I think it would be useful to have a map showing the 135 known vents in the NE Lau Basin as they can help the user interpret the data and findings better.



have seen this myself in other lines of evidence to potentially	aquatic explain	settings) this.	but I am	always loo	king for add	itional