

Interactive comment on “Environmental factors influencing cold-water coral ecosystems in the oxygen minimum zones on the Angolan and Namibian margins” by Ulrike Hanz et al.

Anonymous Referee #1

Received and published: 15 May 2019

The manuscript by Hanz et al. titled ‘Environmental factors influencing cold-water coral ecosystems in the oxygen minimum zones on the Angolan and Namibian margins’ report observations of live and extinct coral mounds and associated fauna along the southwestern margin of Africa (South Atlantic). The authors contrast 2 areas showing distinct cold-water corals patterns, one barren (Namibian margin) and one thriving (Angolan margin). The authors couple these observations with oceanographic properties in the vicinity of these mounds acquired with benthic landers and CTD. The authors report interesting findings: cold-water corals (and associated fauna) are not thought to occur at such low oxygen concentrations, and therefore is provided a detailed rationale of the various physical processes that could maintain the existence of these corals in

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(perhaps short-lived) hypoxic conditions.

The manuscript is well written and provide interesting insights and details on the ecology and physiology of cold-water corals, here the scleractinian *Lophelia pertusa*. Given that observations of other megafauna are reported – e.g. along the Namibian margin on extinct coral mounds – this study is also broadly relevant to deep-sea biology, especially in the context of the presence of Oxygen Minimum Zones.

I enjoyed reading the manuscript and consider it an important contribution to the field of deep-sea biology. It is very relevant to obtain this ecological information to more accurately forecast impacts of a changing ocean and constrain habitat suitability models. I do not have major comments on the content of the manuscript. My comments are very specific (needed clarifications) and most relate to technical corrections.

Specific comments:

L291-293: The South Atlantic Subtropical Surface Water (SASSW) is not described in Section 2.1.1. Oceanographic setting. Could you add a short specification about the origin of this water mass to situate the reader?

Figure 4: Please specify geographic orientation relative to land (i.e. on the right?). I'm also confused by the statement at L309 that the OMZ was stretching at least 100 km offshore. Only 50 km is shown in the figure. Is this accurate or am I misunderstanding the figure?

Technical corrections:

L35: 'barotropic'

L104: What does the 7° refer to? Geographic coordinates, temperature? Please specify.

Figure 1: There is no a, b and c on the figure.

L211: No comma after 'Both'.

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L226: water column in 2 words.

L242: The citation for R should read 'R Core Team, Year'.

L243: 'shorter term trends'

L281: "free waves"

L284: using

L323: Is the date accurate? Year is 2018?

L470: a temporal

L517: Did you mean Namibian margin?

L524: limits3

L577: no comma after both

L595: that

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