

Interactive comment on “The influence of Atlantic climate variability on the long-term development of Mediterranean cold-water coral mounds (Alboran Sea, Melilla Mound Field)” by Robin Fentimen et al.

Robin Fentimen et al.

robin.fentimen@unifr.ch

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We first of all would like to thank both reviewers for the time spent reviewing and commenting this manuscript. We agree that some points raised need to be addressed and this shall be done in a revised version of this manuscript. Indeed, in the same way as Reviewer #2, we believe that the novelty of this dataset which for the first time investigates the development of the Melilla Mounds over the last 300 ka, deserves to be published. Regarding the suggestion to reject this manuscript proposed by Reviewer #1, we do not believe that the issues raised cannot be corrected promptly and as such

we find this opinion harsh (see first response to Reviewer #1). However, we accept the final decision although we regret the lack of discussion offered by Reviewer #1. We will come back with a stronger manuscript and a stratigraphy constructed around additional U-series isotope datings. Below we raise a number of concerns and scientific disagreements that we have with Reviewer #1. A majority of these have already been addressed in the first Reply. Thus, readers may refer to this first response.

Regarding benthic foraminifera, Reviewer #1 states “seen the diversity of benthic foraminifera and their different behavior in different settings, often they are used to back up other proxies”. This is strongly disputable, since the diversity of benthic foraminifera is rather a strength than a weakness, since this allows to track minute environmental changes (see for example the reviews by Jorissen et al., 2007 or Gooday, 2014). The papers of Rüggeberg et al. (2007), Margreth et al. (2011); Stalder et al. (2015; 2018); Fentimen et al. (2020) all use benthic foraminifera as a key and main proxy in cold-water coral environments. The papers of Fink et al. (2012) and Matos et al. (2017) indeed use benthic foraminifera rather as a supporting proxy. Yet, this is due to a choice in investigation strategy rather than a scientific assessment that benthic foraminifera can only be used as a supporting proxy (see again for counter-examples, Gooday et al., 2014). Moreover, the low number of investigated samples in the studies of Fink et al (2012) and Matos et al. (2017), may reduce in these two studies the confidence in conclusions drawn from benthic foraminiferal assemblages. However, the present study presents a consequent number of samples (92, 1 sample every 10 cm), hence benthic foraminiferal assemblages can be used as a main paleoenvironmental proxy. Thus, the comment made by Reviewer #1, like other comments made (see previous reply) is a personal opinion and is not supported by the literature on the subject.

Another comment concerning macrofaunal abundances is in our opinion over-critical: Reviewer #1 states: “That the authors are looking for glacial - interglacial differences”. We at no moment have been looking for these differences; however based on the

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present stratigraphy (which may or may not be subject to change after addition of supplementary coral ages) it is clear that coral and bryozoan show a relation to interglacial - glacial variations. This should be clear to any neutral reader of this preprint.

Finally, as suggested by both Reviewers, some interpretations need to be clarified and down-toned. We fully agree with this and will take into account these comments in a revised version of this manuscript. However, we believe it is out of place to accuse us of “fitting our data to our interpretations”. This is an important accusation since it questions our scientific integrity. Although interpretations may be discussed, at no time do we try to fit the data to a hypothetic model. We believe that the scientific record of all the authors associated with this manuscript is sufficient to suggest that Reviewer #1 has made a false and over-zealous accusation.

Sincerely,

Robin Fentimen, Andres Rüggeberg, Valentin Rime, Eline Feenstra, Norbert Frank, Antonietta Rosso, David Van Rooij, Torsten Vennemann, Thierry Adatte, Irka Hajdas, Anneleen Foubert

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