

## ***Interactive comment on “Holocene hydrography evolution in the Alboran Sea: a multi-record and multiproxy comparison” by Albert Català et al.***

**Anonymous Referee #2**

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This paper provides an in-depth comparison of the paleoceanography of the Alboran Sea from late Glacial time to the present. The main focus is on a comparison of SST reconstructions using Mg/Ca versus alkenones. Interesting discrepancies are found, and an explanation is offered in terms of the seasonality of the signal from *G. bulloides*, and how that may have changed over time. The paper recognizes 3 intervals that represent changing conditions in the Alboran Sea. One of these transitions occur at ~4.2ka BP but this is by no means a main focus of the paper. I question, therefore, if this is an appropriate contribution for a Special Section of Climate of the Past devoted to a "4.2ka BP event". I think the paper is well-suited to be published in CoP, but given that >90% of the paper is devoted to a comparison of Mg/Ca & alkenone-derived SSTs and their implications, I suggest that the paper be accepted for publication, but not in

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the "Special Issue". Technical points: lines 137-140: "...Seawater  $\delta^{18}\text{O}$  ( $\delta^{18}\text{O}_{\text{sw}}$ ) was obtained after removing the temperature effect, with the Shackleton paleotemperature equation (Shackleton, 1974) on the *G. bulloides*  $\delta^{18}\text{O}$  signal using the *G. bulloides* Mg/Ca–SST values. ..." In view of the issues discussed later (re MG/Ca discrepancies with alkenone-derived SSTs) can you say whether this is significant in your derivation here? This may require a brief explanation, expanding on this point. lines 338-340: "...from transitional to subpolar water (Kucera and Darling 2002; Kucera et al., 2005) but they start to be scarce in water with temperatures over 18°C.."

As this is written "they" refers to genotypes. I think "they" should be replaced by " *G. bulloides*"...?

Some improvements in English are needed throughout the manuscript.

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