

Interactive comment on “A spatio-temporal reconstruction of sea-surface temperatures in the North Atlantic during Dansgaard-Oeschger events 5–8” by Mari F. Jensen et al.

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R. The paper by Jensen and co-authors is a very interesting contribution, very well written, which I find particularly useful for the paleoclimate community. The proxy surrogate reconstruction method allows for a better understanding of the climate system beyond the spatial limitations (and variables to be reconstructed) by proxy data. I recommend the manuscript for publication, after a few corrections and some clarifications.

C. Thank you for your comments and review. Comments and some clarifications marked with C below.

C1

R. Page 5. Data Pool. I assume the authors reconstruct SST at 10 m following methodology by Kucera et al. 2005 within the MARGO framework. However, Telford et al. 2014 demonstrated that this depth rarely is the most significant for fossil planktonic foraminifera assemblages in the North Atlantic, and more sensitive to subsurface conditions. This should be acknowledged by the authors. I may understand that for their purposes, this is not a very important issue, but it should be at least explained how this may affect the proxy-model comparison.

C. Thank you for the comment. We acknowledge the fact that the depth habitat of planktonic foraminifera varies in the upper ocean and that this could lead to biases based on the chosen calibration depth. However, the problems with mismatches between depth habitat of planktonic foraminifera and calibration depth of SST transfer function are primarily related to tropical areas. In the northern North Atlantic these problems are much less pronounced. Telford et al. (2013) showed that north of 25° N the reconstructions for different depth are very similar. We will add a piece of text that addresses this issue.

R. Page 6. L. 22. How the larger age uncertainty for cores 3,4 and 14 may affect the comparison between the surrogate and proxy time series? Could you add some sentence about this?

C. We will discuss this further and add some sentences. The results are not sensitive to dropping these 3 cores.

R. Page 10. L. 13. r instead of r2. Figure 7. Black stars mentioned in the caption are missing in the figure. Table 3. Could you include the meaning of A in the caption? In GISP2, should be A instead of r (third column)?

C. Thank you for these corrections, we will fix accordingly

Telford, R. J., Li, C., & Kucera, M. (2013). Mismatch between the depth habitat of planktonic foraminifera and the calibration depth of SST transfer functions may bias

C2

reconstructions. *Climate of the Past*, 9(2), 859-870.

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