

## ***Interactive comment on “Implication of methodological uncertainties for Mid-Holocene sea surface temperature reconstructions” by I. Hessler et al.***

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This manuscript is timely and deals with an obviously important subject as the number of proxy reconstructions grows and modelers search for paleo-benchmarks to which their simulations can be constrained. It deals with a difficult period, the mid-Holocene, with a signal of low magnitude compared to proxy "noise." Below I list several questions about a potential source of proxy "noise" that is unaccounted for in this manuscript, but may be of use to model simulations' oceanographic contexts.

How likely is it that the different proxies compiled herein are actually recording different depths and not precisely the same notion of SST? If so, and they are nonethe-

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less grouped into the lump definition of "SST", is there a chance that we would lose oceanographic information, i.e. changing of currents or shoaling/heaving of subsurface water masses? Whereas other sources of uncertainty are addressed in this manuscript (eg. cleaning treatments, calibrations, etc.), the actual depth of the records is not discussed. If the goal of compiling these reconstructions is to provide a benchmark for climate model simulations, then grouping these records together as "SST" may miss some fine details that simulations may be able to resolve and help us explain. Do we know enough about these proxies to be able to differentiate between them in terms of depth of record?

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