

## ***Interactive comment on “A model-data comparison of the Holocene global sea surface temperature evolution” by G. Lohmann et al.***

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Our work is related to Holocene SST trends, and in our case we concentrate on the last 6000 years until the pre-industrial climate. The models applied are listed in Braconnot et al. (2007) and in Lorenz and Lohmann (2004). The simulated pattern of temperature trends are consistent with proxy derived paleo-temperatures (Leduc et al., 2010) and theoretical approaches (Laepfle and Lohmann, 2009). We find however that the model under- and/or the data overestimate the magnitude of Holocene temperature trends. Part of the differences in the magnitude of Holocene SST trends between model simulations and derived paleo-temperatures can be reconciled by considering shifts in seasonality and habitat depth. We extensively discuss possible mechanisms for both the models and the interpretation of the proxy derived paleo-temperatures.

The word "prediction" is not mentioned at all, the cited models are indeed also used for climate projections.

Braconnot, P., Otto-Bliesner, B., Harrison, S., Joussaume, S., Peterchmitt, J.-Y., Abe-Ouchi, A., Crucifix, M., Driesschaert, E., Fichet, Th., Hewitt, C. D., Kageyama, M., Kitoh, A., Laine, A., Loutre, M.-F., Marti, O., Merkel, U., Ramstein, G., Valdes, P., Weber, S. L., Yu, Y., and Zhao, Y.: Results of PMIP2 coupled simulations of the Mid-Holocene and Last Glacial Maximum – Part 1: experiments and large-scale features, *Clim. Past*, 3, 261–277, doi:10.5194/cp-3-261-20 2007, 2007.

Laepfle, T. and Lohmann, G.: The seasonal cycle as template for climate variability on astronomical time scales, *Paleoceanography*, 24, PA4201, doi:10.1029/2008PA001674, 2009.

Leduc, G., Schneider, R., Kim, J.-H., and Lohmann, G.: Holocene and Eemian sea surface temperature trends as revealed by alkenone and Mg/Ca Paleothermometry, *Quaternary Sci. Rev.*, 29, 989–1004, 2010.

Lorenz, S. J. and Lohmann, G.: Acceleration technique for Milankovitch type forcing in a coupled atmosphere-ocean circulation model: method and application for the Holocene, *Clim. Dynam.*, 23, 727–743, doi:10.1007/s00382-004-0469-y, 2004.

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