

## ***Interactive comment on* “Technical Note: Is radiation important for the high amplitude variability of the MOC in the North Atlantic?” by D. Nof and L. Yu**

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After reading the "Technical Note" by Nof and Yu I was quite confused. This short manuscript leaves the reader with many unanswered questions. For example:

- 1) The authors discuss the role of longwave radiation in the surface heat flux budget of the ocean but neglect downwelling longwave radiation. Why? It is crucial for the heat flux balance and challenges the whole argumentation.
- 2) The whole argumentation of Nof and Yu relies on the surprising idea, that a smaller ocean-air heat flux results in a warmer (!) atmosphere. I wonder where the heat for warming the atmosphere comes from?

3) What is exactly shown in Fig. 1a? In other data sets (e.g. NCEP) one can clearly see enhanced longwave radiation fluxes over the warmer ocean surface in the North Atlantic compared to the North Pacific (in harmony with the Stefan-Boltzmann law).

Last but not least, I would like to comment on the authors' claim that millennial-scale temperature fluctuations during the glacial were much weaker in the surface ocean than in the overlying atmosphere. To underpin this statement they cite a "Physics Today" paper by Edouard Bard. In this paper, two curves are shown: an air temperature reconstruction from a Greenland ice core along with a sea surface temperature reconstruction from a sediment core from the mid-latitude Atlantic Ocean. It is important to realize that these two locations are some 3000 km apart, i.e. the ice core record is not representative for the air directly above the sediment core site. The authors seem to compare apples with oranges.

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