

## ***Interactive comment on “Abrupt cold events in the North Atlantic in a transient Holocene simulation” by Andrea Klus et al.***

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This is indeed an interesting paper. I don't aim at giving an exhaustive review here, but I would suggest that the authors compare and discuss their results with those in Moreno-Chamarro et al. [2015].

My impression is that many of the features and mechanisms of the cold events described here with the CCSM3 model are actually very similar to those of the decadal cold events in the simulations with the MPI-ESM model in that referred paper. For example, the conspicuous cooling and sea ice expansion around the Labrador Sea, the weakening of the subpolar gyre and the oceanic deep convection shutdown, or the length of the cold events itself. I would add, nonetheless, that the authors are here able

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to go a step farther and identify a potential trigger mechanism of such events. Such discussion would be a very valuable contribution to the Klus et al.'s manuscript.

### References

Moreno-Chamarro, E., Zanchettin, D., Lohmann, K., Jungclaus, J. H. (2015). Internally generated decadal cold events in the northern North Atlantic and their possible implications for the demise of the Norse settlements in Greenland. *Geophysical Research Letters*, 42(3), 908-915.

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