

# **Next Steps and Open Discussion**

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June 10, 2025

This material is based upon work supported by the National Center for Atmospheric Research, which is a major facility sponsored by the National Science Foundation under Cooperative Agreement No. 1852977.

 Suppressing sub-mesoscale mixing in the Lab Sea shows promise for preventing freezing. A complimentary approach involves reducing horizontal boundary diffusion (Redi parameterization near the surface).

Minimum SST in the Labrador Sea



 Enabling Smagorinsky Laplacian with a constant of 0.15 prevents truncation errors, while having minimal impact on key metrics.



#### **Boundary Layer Scheme and Settings**

• Sensitivity experiments with ePBL show promising results.

## SH Sea Ice Area:



Temperature bias @ 75 m:

### Next steps:

- Energetics-based KPP
- KPP + LF17











#### **Transects of zonal velocity**



Backscatter can negatively impact the deep branch of the MOC. We're planning to test a few approaches to reduce the influence of the backscatter at depth to avoid this deterioration.

- Emergence of **Tsuchiya jets** when backscatter is applied;
- These jets reduce biases in the extent of oxygen minimum zones (not shown).



- The out-of-the-box settings were created in a convoluted way;
- We have a new method for specifying the target densities and thicknesses given an initial T & S state. This looks promising in forced and coupled simulations as well as in a LGM simulation performed by Jiang Zhu (Paleoclimate Working Group);
- OMWG will conduct further analysis, and if the new method does not degrade the results, we will adopt it given that this method is reproducible and applicable to other scenarios.