Abstract Submitted
for the DFD19 Meeting of
The American Physical Society

Uncertainty Quantification of Models for Ocean Surface Boundary Layer Turbulence GREGORY WAGNER, RAFFAELE FERRARI, ANDRE SOUZA, Massachusetts Institute of Technology — The atmosphere and ocean communicate through the ocean's turbulent surface boundary layer (OSBL), and accurate models of OSBL turbulence are necessary for accurate climate prediction. In this talk we use a suite of Large Eddy Simulations of OSBL turbulence in a range of physical scenarios to optimize and estimate the uncertainty of free parameters in models for OSBL turbulent mixing designed to be embedded in ocean general circulation models. We evaluate deficiencies in the structure of several different OSBL turbulence models by comparing the dependence of optimal parameters on the targeted physical scenario. Our ultimate goal is to choose a best OSBL turbulence closure for implementation in a new Earth System Model being developed as part of the Climate Machine (CliMa) project.

Gregory Wagner
Massachusetts Institute of Technology

Date submitted: 01 Aug 2019 Electronic form version 1.4