Comparison of Coastal and Regional Ocean Community Model (CROCO) and NCAR-LES in non-hydrostatic simulations

Xiaoyu Fan[1], Baylor Fox-Kemper[1], Nobuhiro Suzuki[2], Qing Li[3], Patrick Marchesiello[4], Francis Auclair[5], Peter Sullivan[6] & Paul Hall[1]

[1]*Brown University*
[2]*Institute of Coastal Ocean Dynamics Helmholtz-Zentrum Hereon*
[3]*The Hong Kong University of Science and Technology (Guangzhou)*
[4]*Institute of Research for Development, Marseille, France*
[5]*Laboratoire d'Aerologie, Toulouse, France*
[6]*National Center for Atmospheric Research*

Coastal and Regional Ocean Community model (CROCO) and NCAR Large-eddy simulations (NCAR-LES) are compared, with a focus on their accuracy and efficiency. Various combinations of surface wind and surface cooling are used to measure the accuracy; while the computer time of model running is recorded to evaluate the efficiency. Different settings of time-stepping are adjusted according to the capacity of the computational platform. Ocean State Center for Advanced Resources (Oscar) of Brown University and Cheyenne, a high-performance computer built for NCAR by SGI are both used. We will present the comparison of accuracy and efficiency in non-hydrostatic simulations of these two systems.