1135-86-1981 **Mariangel Garcia***, San Diego State University, 5500 Campanile Dr, San Diego, CA 92182-1245, **Paul Choboter** (pchobote@calpoly.edu), California Polytechnic State University, San Luis Obispo, CA 93407, **Ryan Walter** (rkwalter@calpoly.edu), California Polytechnic State University, San Luis Obispo, CA 93407, and **Jose Castillo** (jcastillo@mail.sdsu.edu), San Diego State University, 5500 Campanile Dr, San Diego, CA 92182-1245. *Validation of the Nonhydrostatic General Curvilinear Coastal Ocean Model (GCCOM) for Stratified Flows.*

One of the challenges in the simulation of coastal ocean dynamics is the vast range of length and time scales present. While global- and basin-scale processes and currents can be captured quite well with computationally-inexpensive hydrostatic models, smaller-scale features such as shoaling nonlinear internal waves and bores, coastal fronts, and other convective processes require the use of a nonhydrostatic model to capture dynamics accurately. Here we introduce the nonhydrostatic capabilities of the General Curvilinear Coastal Ocean Model (GCCOM) in a stratified environment. GCCOM is a three-dimensional, nonhydrostatic Large Eddy Simulation (LES) model that can run in a fully three-dimensional general curvilinear coordinate system. While this model was validated for unstratified flows, we present on recent advances of the model to simulate stratified flows. In particular, a suite of test cases widely used as benchmarks for assessing the nonhydrostatic capabilities for gravity-driven flows: the classic lock release and gravity current experiment and internal seiche in a flat bottom tank. These validation experiments demonstrate that GCCOM can resolve complex nonhydrostatic phenomena in stratified flows with numerical accuracy and mass and energy conservation. (Received September 25, 2017)