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Using drifter observations to assess skill of proposed upgrades for operational global ocean models

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The impact of global Navy Layered Ocean Model (NLOM) sea surface height (SSH) on global Navy Coastal Ocean Model (NCOM) nowcasts of ocean currents is investigated in a series of experiments. The studies focus on two primary aspects: the role of NLOM horizontal resolution and the role of differences between the SSH means in NLOM and the Modular Ocean Data Assimilation System (MODAS) climatology. To evaluate the impact of changes to the assimilation system, we compare observed drifter trajectories with trajectories simulated using global NCOM over seven-day time scales. The results indicate general improvement in NCOM currents as a result of increasing NLOM horizontal resolution. The effects of accounting for the differences between NLOM and MODAS mean SSH is less clear, with some regions showing a decline in simulation skill while others show improvement or little impact. These outcomes supported recommendations for operational transition to 1/32˚ global NLOM with continued refinement to methods accounting for differences in mean SSH.