

Resolution dependency of NWP wind depictions - implications for marine forecasts

Greg Mann, Ph.D.

NOAA/NWS/Weather Forecast Office Detroit/Pontiac, White Lake, MI

NOAA Coastal Storms Program sponsored research to accelerate next generation operational hydrodynamic models included a testing component to evaluate effects of atmospheric model input temporal and spatial resolution. This exploration of input resolution impacts revealed substantially varying near surface wind field outcomes in the Great Lakes marine environment. Specifically, horizontal grid spacing treatment of unstable marine boundary layers result in expected significant spatial structure differences (e.g., resolution of horizontal convective rolls), and unexpected redistribution of momentum due to the ability to resolve the boundary mixing mechanisms. Implications on operational marine forecasts will be discussed given the variety of operational models resolutions available to support the forecast process.