

Improvements to the Wind-Driven Component of the OSCAR Surface Current Product

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The Ocean Surface Current Analyses Real-time (OSCAR) system uses a quasi-steady geostrophic model together with a wind-driven component and a thermal wind adjustment to directly calculate global surface currents from satellite data. The system is limited to low-frequency (timescales longer than 10 days) surface current analyses. The ultimate goal is to extend OSCAR dynamics to incorporate time-dependent dynamics for real-time estimation and short-range forecasting of ocean mixed-layer currents on a 1-to-5 day basis.

This study focuses on the wind-driven dynamics used within OSCAR. The present system employs an Ekman/Stommel formulation using a vertical eddy-viscosity for the wind-driven ageostrophic velocity. The performance of several parameterizations of upper ocean wind forcing of the surface mixed layer applied to OSCAR will be assessed by comparison with mooring and drifter velocities.