



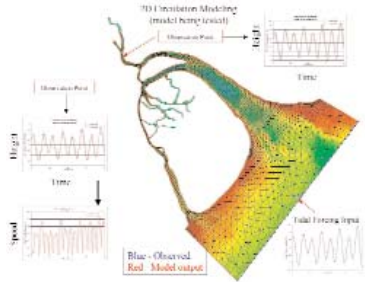
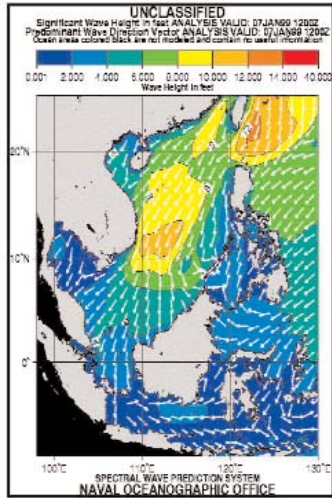
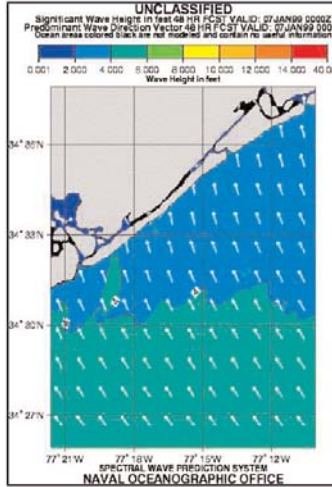
Ocean Modeling

NAVOCEANO provides operational oceanographic support to the Fleet through tailored analysis, real-time data, climatological products and operational ocean models.

| Global Models | | |
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| <p>Navy Layered Ocean Model (NLOM)</p> | <ul style="list-style-type: none"> Global coverage 1/16-degree resolution Seaward of 200-m depth Six vertical layers Forecasts front and eddy positions daily from 0 to 48 hours Forecasts layered sea surface temperature (SST) and sea surface height (SSH) | <p>UNCLASSIFIED: 1/16° Global NLOM CURRENT SPEED LAYER 1 ANALYSIS 20031208</p> |
| <p>Global Navy Coastal Ocean Model (G-NCOM)</p> | <ul style="list-style-type: none"> 1/8-degree resolution 42 vertical layers Will provide boundary conditions for higher resolution nests Assimilates NLOM SSH Underwent validation testing in fall 2003 Forecasts 3D temperature, salinity and current structure from 0 to 96 hours | <p>Sea Surface Temperature (°C) 1/8° Global NCOM Assimilative Case 1g 08-26-2003</p> |

| Regional Models | | |
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| <p>Shallow-Water Analysis and Forecast System (SWAFS)</p> | <ul style="list-style-type: none"> 3D coastal circulation model Based on Princeton Ocean Model (POM) Resolution varies by region (1/2 to 24 km) Assimilates observations from satellite (SST, SSH) and in situ (Expendable Bathythermograph (XBT); Conductivity, Temperature, and Depth (CTD); and profiling float) Forced by tides and Fleet Numerical Meteorology and Oceanography Center (FLENUMMETOCCEN) winds and fluxes Provides daily 3D forecasts of currents, tides, temperature, salinity from 0 to 48 hours | <p>SWAFS surface temperature / currents Run 20031208 hour 072 forecast valid 2003121000</p> |
| <p>Modular Ocean Data Assimilation System (MODAS)</p> | <ul style="list-style-type: none"> Statistical analysis model for: <ul style="list-style-type: none"> - Temperature - Salinity - Derived quantities (sound speed, etc.) Relocatable, variable resolution Uses Optimum Interpolation schemes to combine: <ul style="list-style-type: none"> - Satellite-Derived Sea Surface Altimetry - Gridded climatology (temperature, salinity) - Near-real-time XBT, CTD, float and buoy data Provides 3D temperature and salinity grids <ul style="list-style-type: none"> - Is used for acoustic prediction models - Is foundation for MODAS, run at Naval Meteorology and Oceanography Command regional centers and deployed Navy ships. Provides initialization fields for 3D models | <p>Temperature (Deg F) 0 fathoms 2003082600</p> |

Local Models

| | | |
|---|--|--|
| <p>2D Tidal Elevation/Circulation Models</p> | <ul style="list-style-type: none"> · RMA-2—Riverine and estuary model · ADCIRC—Coastal circulation model · WQMAP—Estuarine and coastal circulation model · PC-Tides—Coastal and small basin tidal model · Delft3D—Integrated nearshore circulation, wave and surf modeling system · Relocatable models with high-resolution domains that are implemented as needed. |  <p>The diagram illustrates a 2D tidal elevation/circulation model. It features a map of a river estuary with a color-coded elevation map. A legend indicates 'Blue - Observed' and 'Red - Model output'. Time-series plots for 'Elevation (ft)' and 'Speed' are shown, along with a 'Tide Elevation Time' plot. The text 'TID Elevation Modeling (model pump/tracks)' is visible at the top.</p> |
| <p>Wave Model (WAM)</p> | <ul style="list-style-type: none"> · Area coverage <ul style="list-style-type: none"> - Globally relocatable - Currently running many domains - Relocatable, variable resolution (1/4 to 1/12 degree) · Deep water wave model (> 20m) · Analysis and forecasts to 48/72 hours (twice daily) · Surface wind forcing using FNMOC's Navy Operational Global Atmospheric Prediction System (NOGAPS) and Coupled Ocean/Atmosphere Mesoscale Prediction System (COAMPS) models · Produces graphics and gridded set of wave parameters <ul style="list-style-type: none"> - Predominant wave direction - Significant wave height - Swell direction, period, and height - Wind wave height - Average wave period |  <p>The figure is a global map titled 'UNCLASSIFIED Significant Wave Height in feet ANALYSIS VALID: 07JAN99 1200Z'. It shows wave height and direction across the globe. A color scale at the top indicates wave height in feet from 0.000 to 14.000. The map is labeled 'SPECTRAL WAVE PREDICTION SYSTEM' and 'NAVAL OCEANOGRAPHIC OFFICE'.</p> |
| <p>Steady-State Spectral Wave Model (STWAVE)</p> | <ul style="list-style-type: none"> · Area coverage: Several areas running-typically ~25 km along-coast · Relocatable, variable resolution (100 to 400 m) · Shallow water model (< 20 m) · Surface wind forcing using FNMOC's NOGAPS and COAMPS models · Gridded set of wave parameters forecast from 0 to 48 hours (twice daily) <ul style="list-style-type: none"> - Predominant wave direction - Significant wave height - Peak wave period · Deep water input provided by WAM |  <p>The figure is a coastal map titled 'UNCLASSIFIED Significant Wave Height in feet 48 HR FCST VALID: 07JAN99 0000Z'. It shows wave height and direction for a specific coastal area. A color scale at the top indicates wave height in feet from 0.001 to 14.000. The map is labeled 'SPECTRAL WAVE PREDICTION SYSTEM' and 'NAVAL OCEANOGRAPHIC OFFICE'.</p> |

For more information, please contact NAVOCEANO Public Affairs at 228.688.5649 or visit <https://www.navo.navy.mil>.