

Using Initial and Lateral Boundary Conditions from HYCOM in a Coastal Southern California NCOM Model

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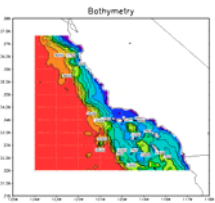
Goal

Use (Pacific) HYCOM fields for initial and boundary conditions in a high-resolution coastal Southern California NCOM model forced by regional COAMPS fluxes.

Procedure

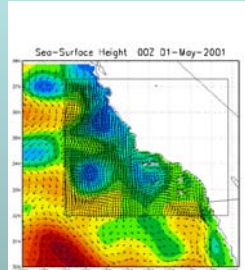
- Access archived Pacific HYCOM files (50 Gb/month)
- Interpolate daily Pac-HYCOM H,T,S,U,V to 25 z-levels
- Extract E. Pacific subset from Pac-HYCOM grid
- Interpolate 8 km z-level HYCOM to 3 km σ -z NCOM
- Update Coastal S. California NCOM B.C.'s daily
- Force NCOM with 9 km COAMPS fluxes

NCOM 3-km Domain

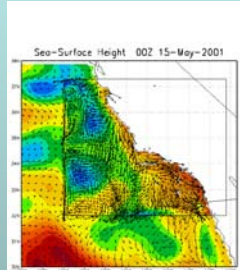


H,U,V

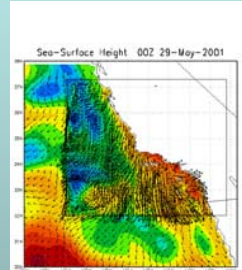
1 May 2001



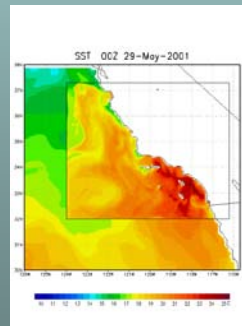
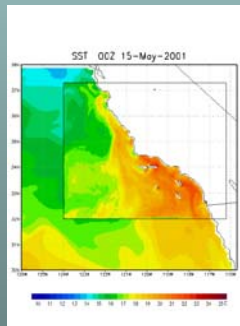
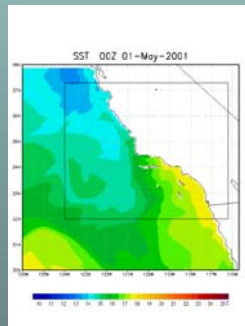
15 May 2001



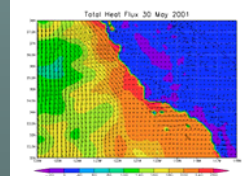
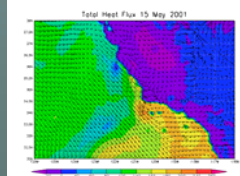
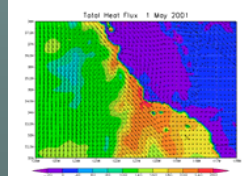
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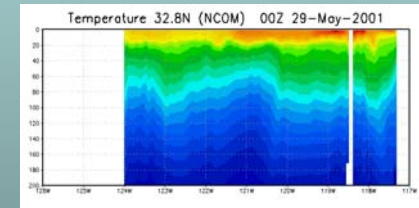
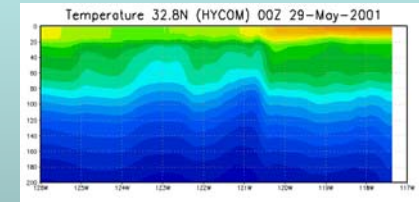
SST



Flux



Temperature Cross-Sections



So. Cal. NCOM

- 3 km, 40 σ -z levels
- COAMPS 9 km Fluxes
- No data assimilation
- Initialized 1-May-2001

Pacific HYCOM

- 8 km, 17 layer
- NCEP Fluxes
- No data assimilation
- export H,S,T,U,V every 24hr

Discussion

Pacific HYCOM (outer box) influences the NCOM region (inner box) through prescribed temperatures, salinities, and velocities at open boundaries that are updated every 24 hours. NCOM boundaries exhibit some effects of the imperfect radiation of energy from the model domain. NCOM interior responds mainly to high-resolution momentum and heat fluxes from COAMPS.

Accomplishments

- created interface (for NRL-MRY version) between NCOM and HYCOM
- compared use of b.c.'s from global NCOM to those from HYCOM

Plans

- extend simulation to other regions and time periods
- activate data assimilation (NCODA)
- evaluate model results against available observations
- activate ocean-atmosphere coupling capabilities of system