Interactions between California coastal ocean and San Francisco Bay/Estuary and the lower Sacramento River

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California Coastal Ocean Nowcast/Forecast System

- Regional Ocean Modeling System (ROMS)
- Horizontal resolution: 3 km
- Vertical resolution: 40 layers
- Atmospheric forcing: 12-km NAM forecasts (NOAA/NCEP)
- Boundary conditions: Climatological T/S, TPXO tides
- Data Assimilation: multi-scale 3DVAR (satellite SST, glider/mooring/float T/S profiles, HF radar surface currents)
- Nowcast: every 6 hours, 09/10-present.
- Forecast: Daily, 72 hour forecast from 03 UTC
California Coastal Ocean Nowcast/Forecast System

- SST from multiple satellites
- SSV from HF radars
- Vertical profiles of T/S from three Spray gliders, Argo floats, ships

Multi-scale data assimilation via 3DVAR
Sea Surface Height: January 15, 2014

15 GMT

21 GMT
Linking California coastal ocean model with San Francisco Bay/Estuary & lower Sacramento River

3-km

Offline

1-km.........................10-m
Semi-implicit Eulerian–Lagrangian Finite-Element (SELFE)
Sea Surface Height: Obs vs Model

Daily RMS Difference = 3.16 cm
Hourly RMS Difference = 6.53 cm
Sea Surface Height: Obs vs Model

Daily RMS Difference = 4.14 cm
Hourly RMS Difference = 15.27 cm
Sea Surface Height: Obs vs Model
Coastal Ocean & Estuary/River Exchange

From Tides To Climate
Proposed End-User/Early-Adopter
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