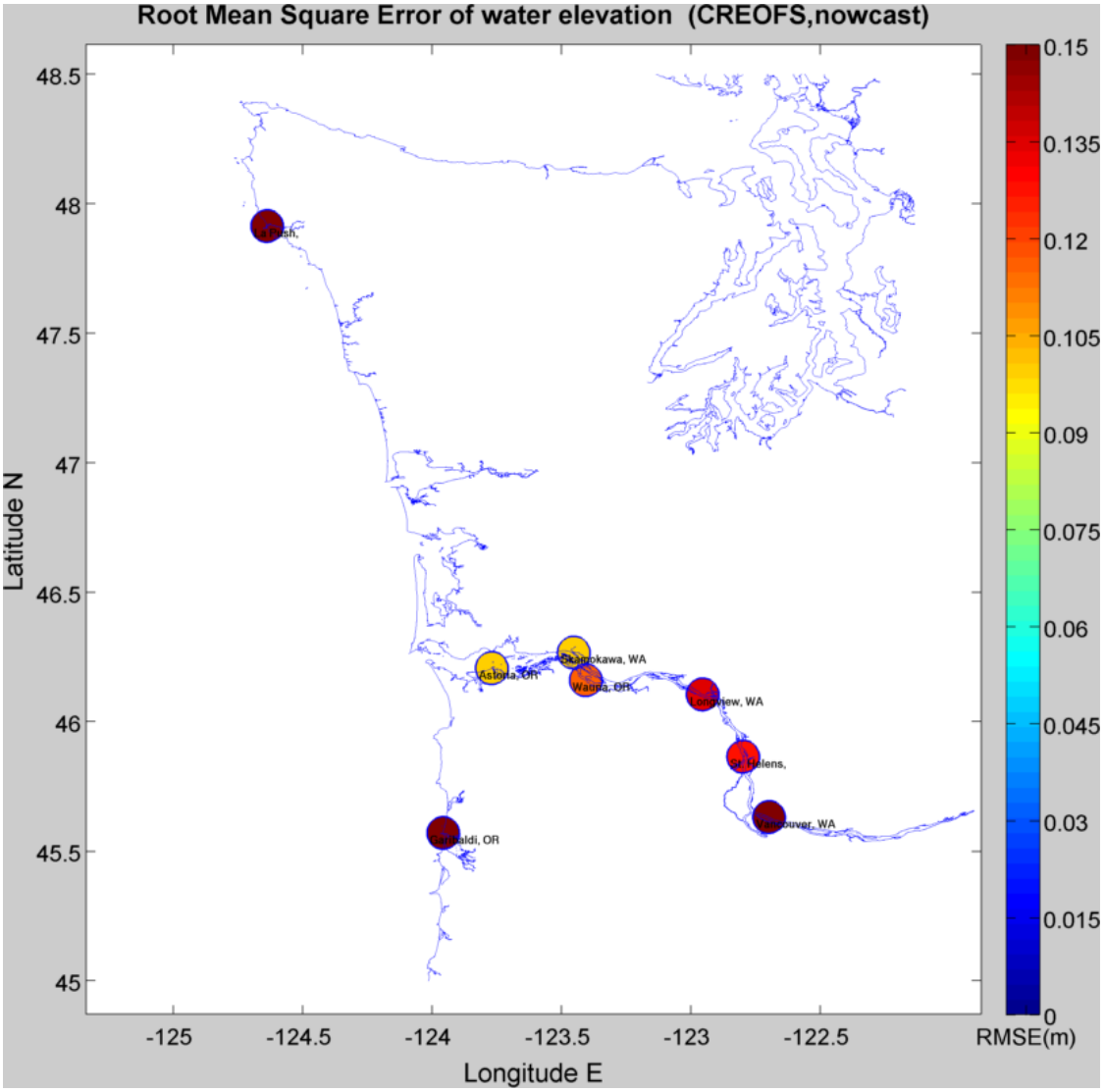
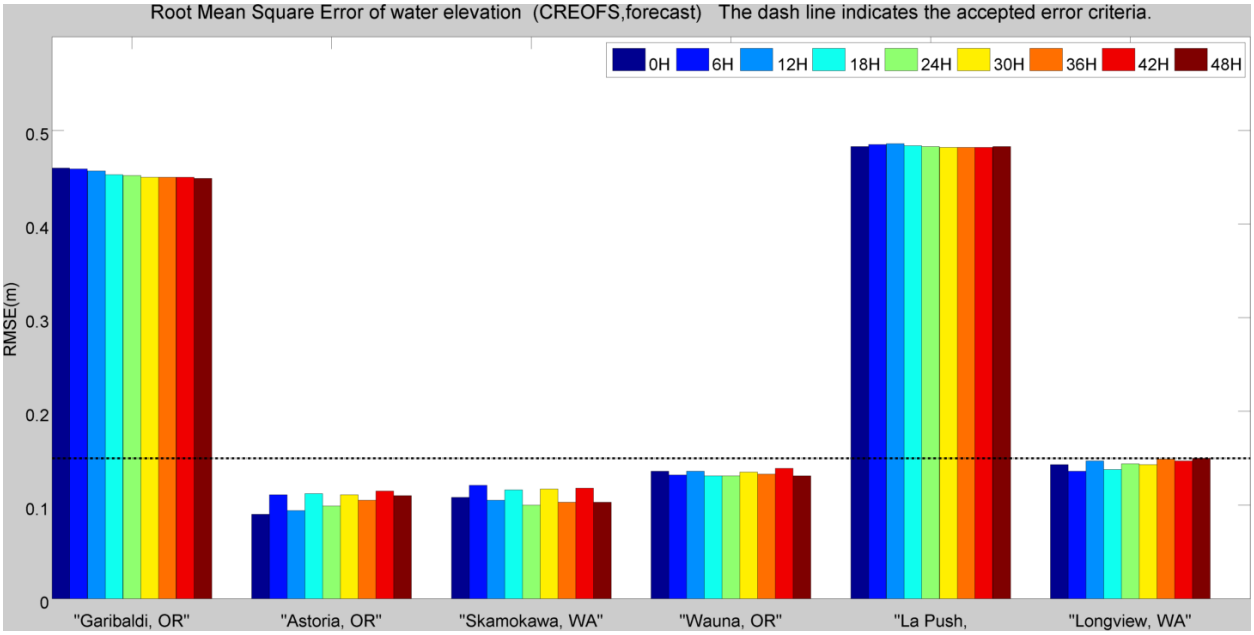
The Columbia River Estuary Operational Forecast System (CREOFS) uses the Semi-implicit Eulerian-Lagrangian Finite Element (SELFE) model. It became operational in 2012 to provide nowcast and forecast guidance of water levels, currents, water temperature and salinity four times per day. CO-OPS produces CREOFS uncertainty estimates by running the NOS standardized skill assessment tools (Hess et al., 2003; Zhang et al. 2009) for the CREOFS operational model output. The accepted error criteria for skill assessment are: water level 0.15m, current speed 0.26m/s, current direction 22.5 degree, temperature 3.0 °C and salinity 3.5 psu.

The figures below indicate the Root Mean Square Error (RMSE) of CREOFS water levels, currents, water temperature, and salinity nowcasts and forecasts from 9/1/2014 to 9/30/2014.

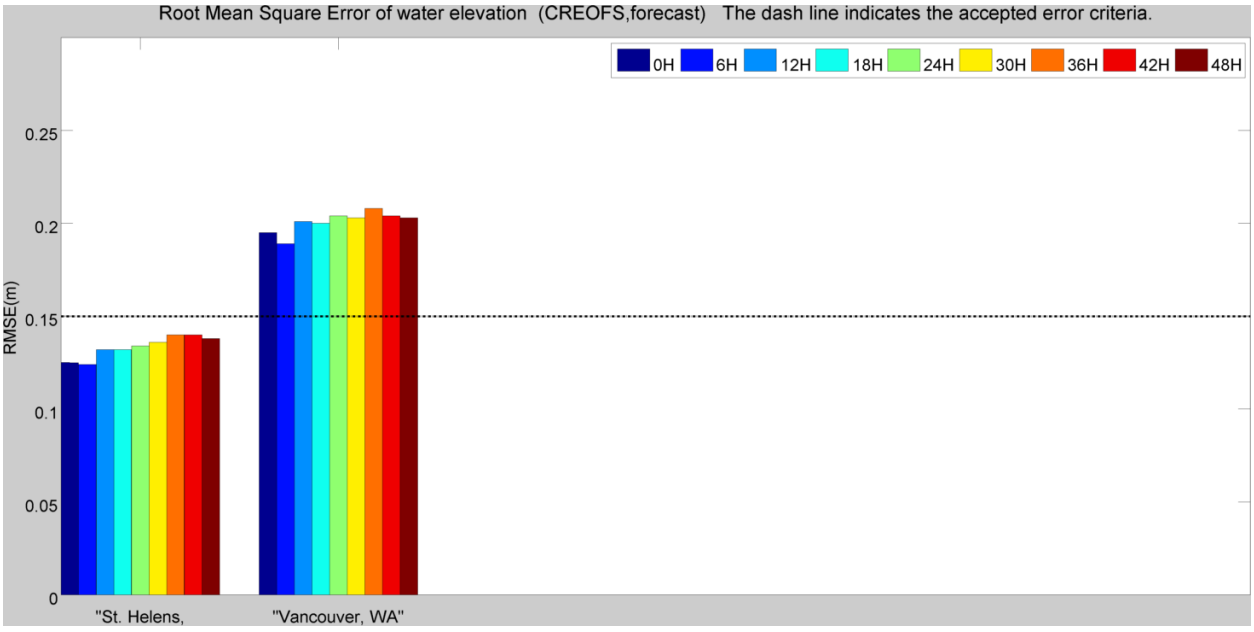
Nowcast Water Level



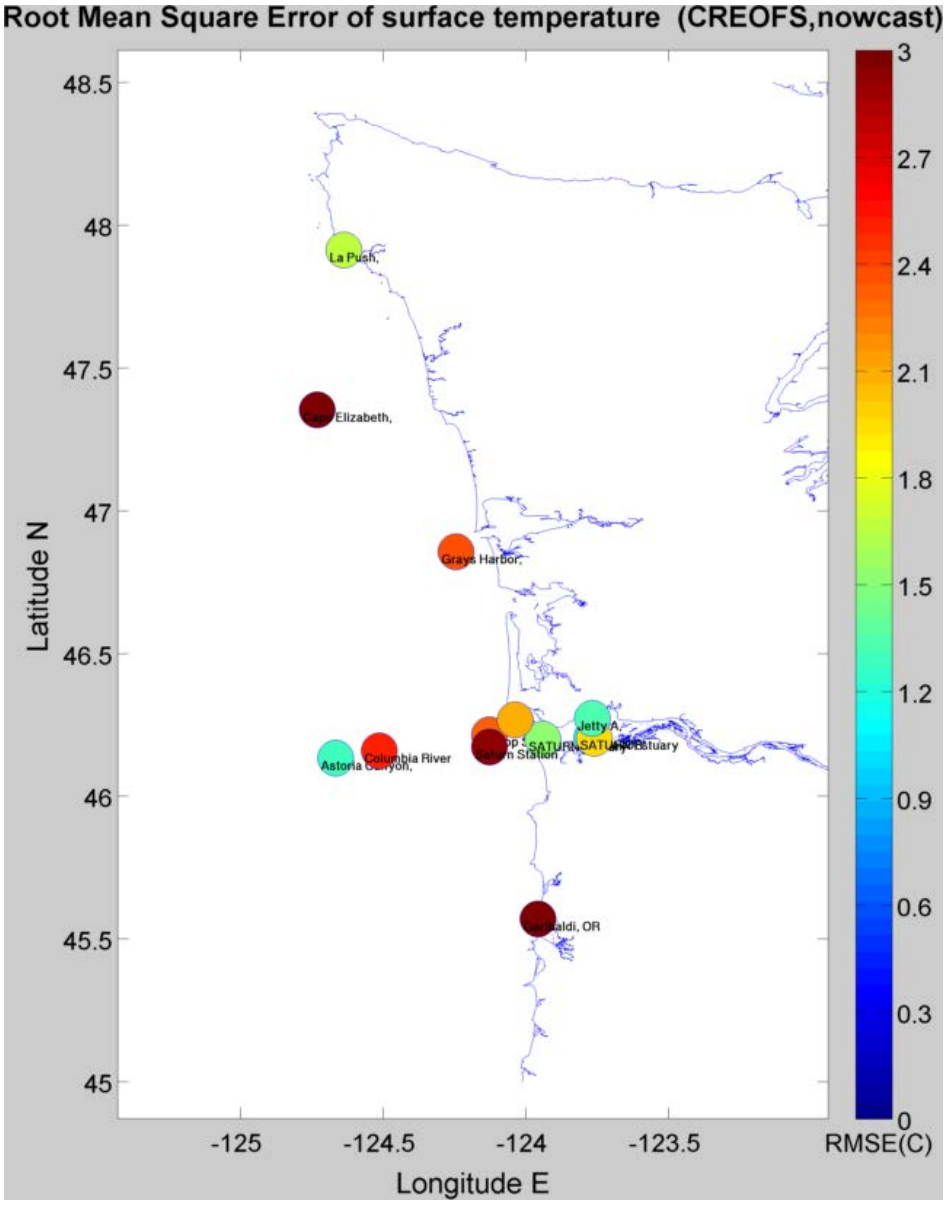
Forecast Water Level (1)



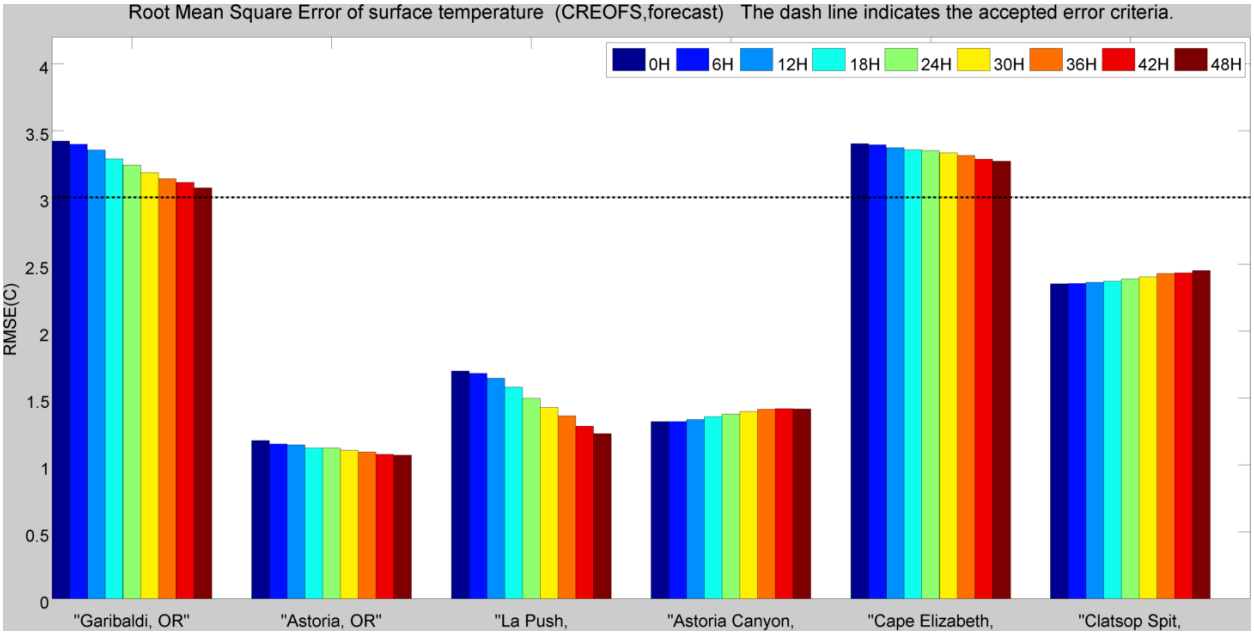
Forecast Water Level (2)



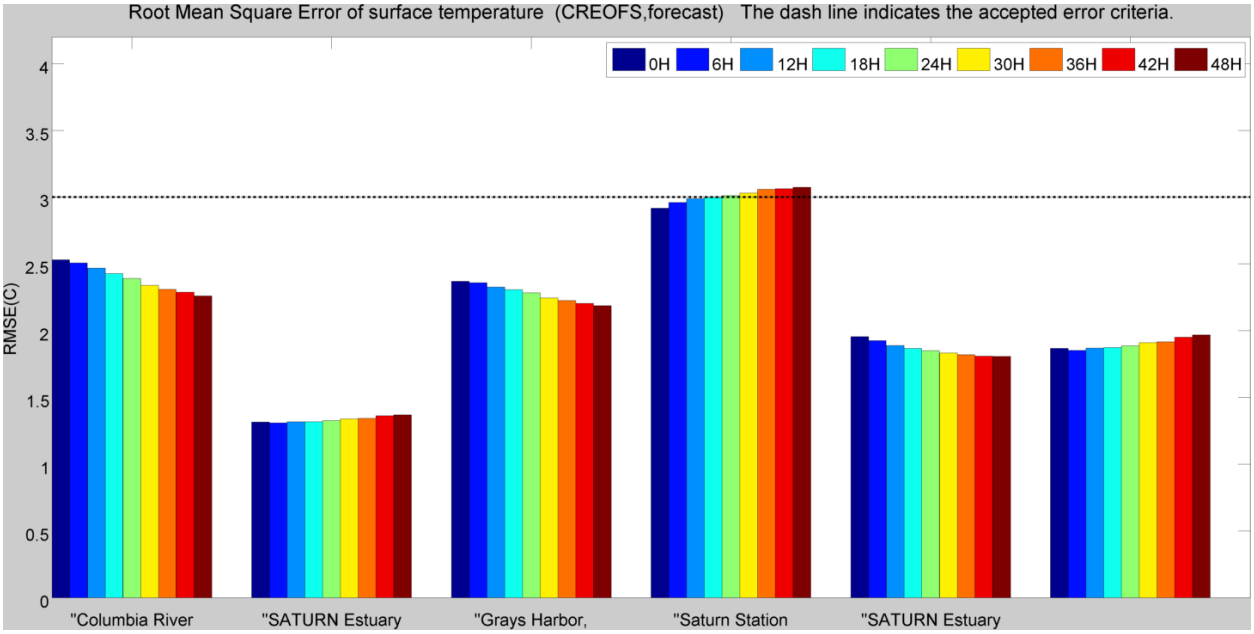
Nowcast Surface Temperature



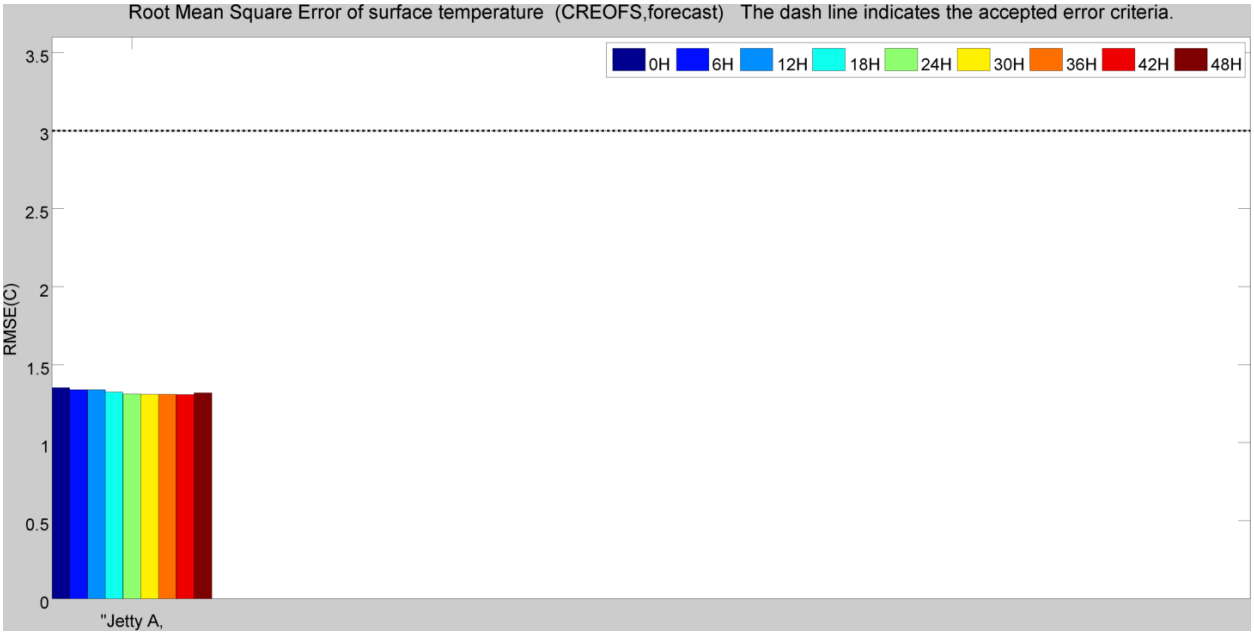
Forecast Surface Temperature (1)



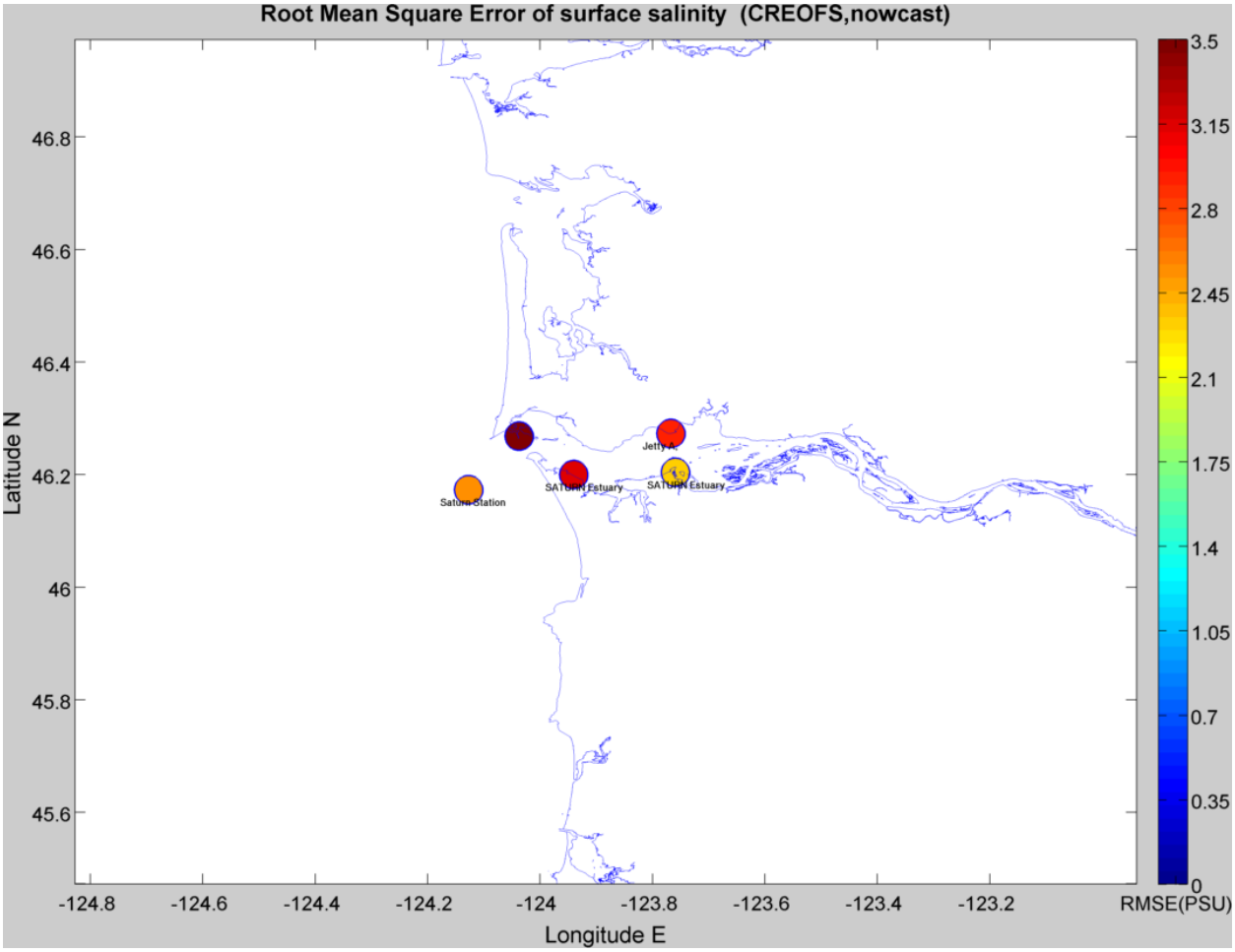
Forecast Surface Temperature (2)



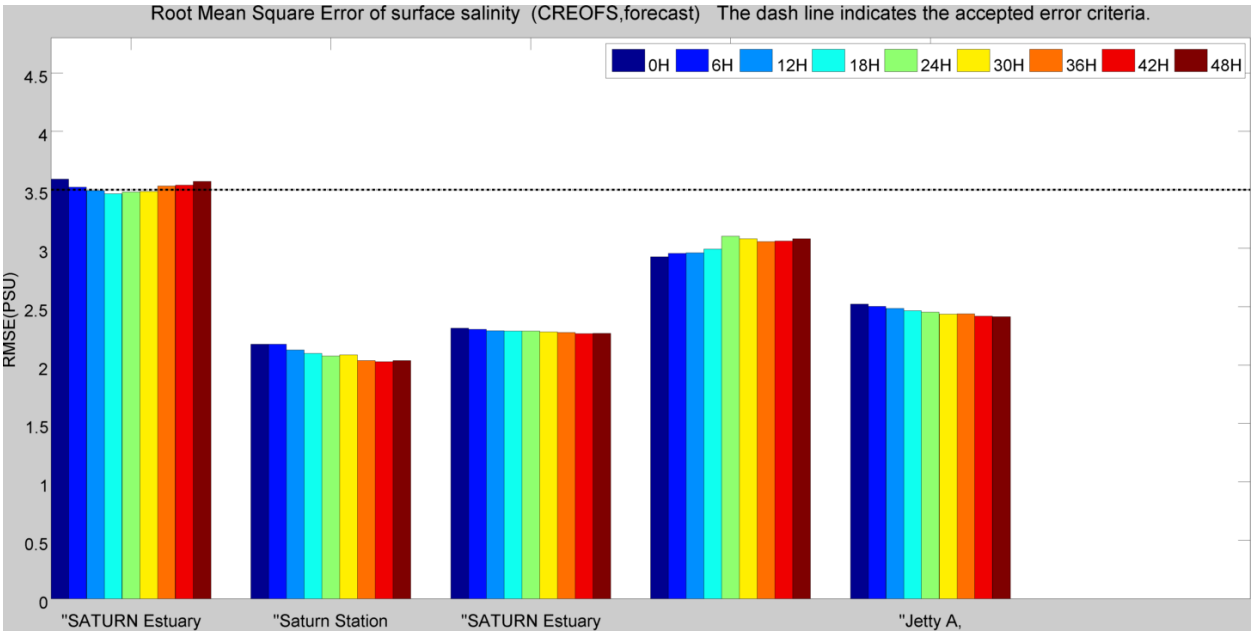
Forecast Surface Temperature (3)



Nowcast Surface Salinity



Forecast Surface Salinity



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Hess, K.W.; Gross, T.F.; Schmalz, R.A.; Kelley, J.G.W.; Aikman, F.; Wei, E.; Vincent, M.S. *NOS Standards for Evaluating Operational Nowcast and Forecast Hydrodynamic Model Systems*; NOAA Technical Report NOS CS 17; National Oceanic and Atmospheric Administration: Silver Spring, MD, USA, 2003.

Zhang, A., Hess, K., Wei, E. and Myers, E., 2009. Implementation of model skill assessment software for water level and current in tidal regions, NOAA Technical Report, NOS CS 24.