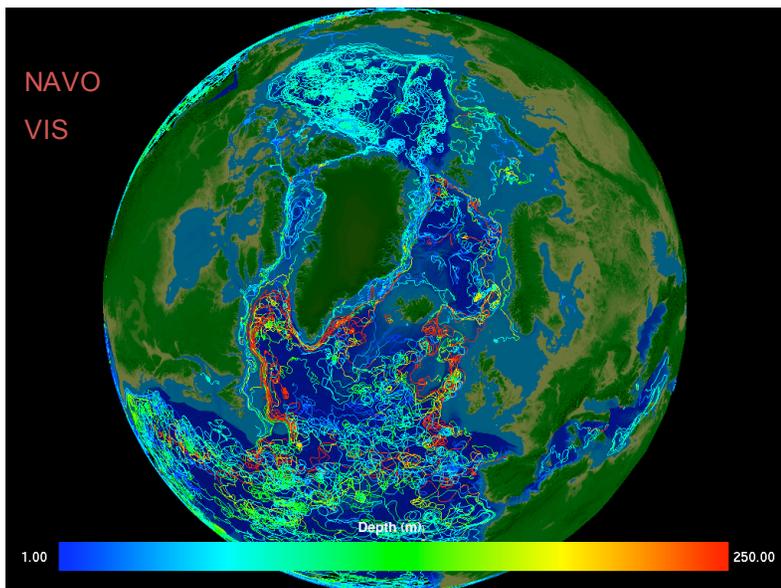


# Fine Resolution Global Ocean, Sea-Ice, and Coupled Ice-Ocean Modeling

Julie McClean (SIO/LLNL)

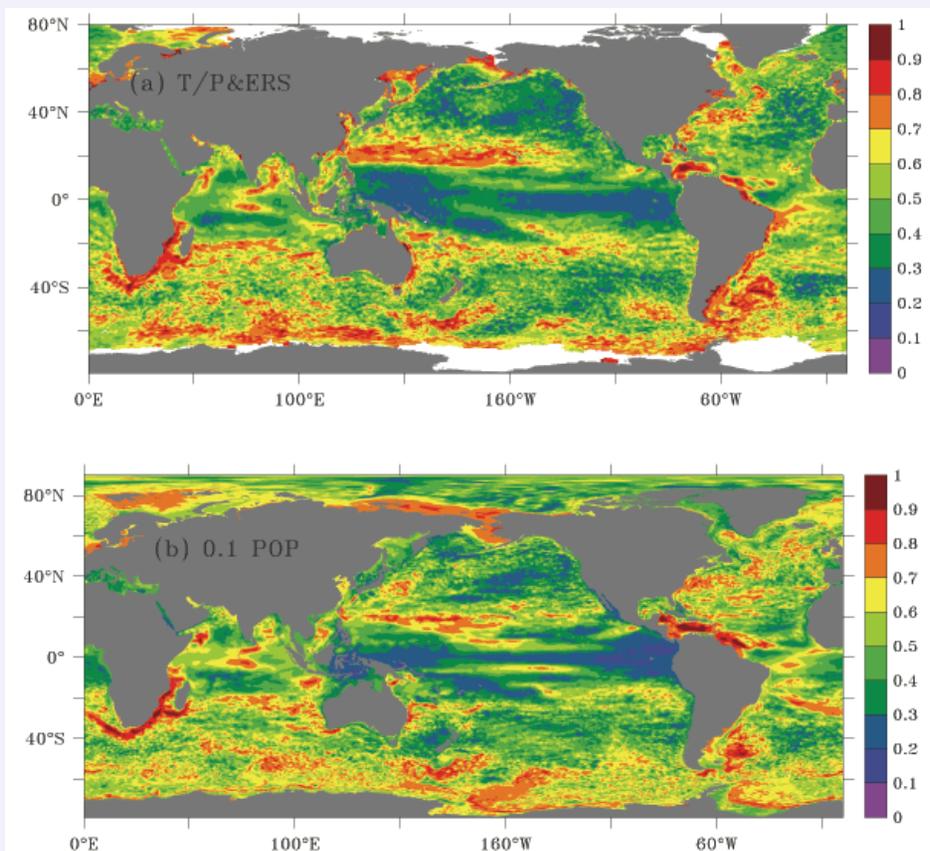
Mathew Maltrud & Elizabeth Hunke (LANL)

Detelina Ivanova (SIO/LLNL)



**Ocean Model:** Fully-global  $0.1^\circ$ , 40-level Parallel Ocean Program (POP), synoptic NCEP/NCAR surface forcing for 1979-2003. Examine 1) veracity by statistical comparisons with observations such as altimetry, 2) mesoscale process 3) eddy heat fluxes and 4) heat content variability.

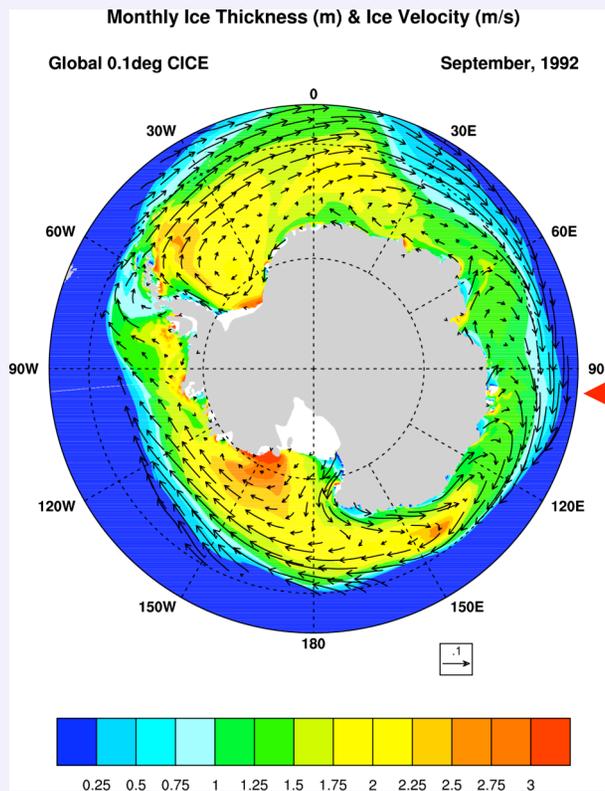
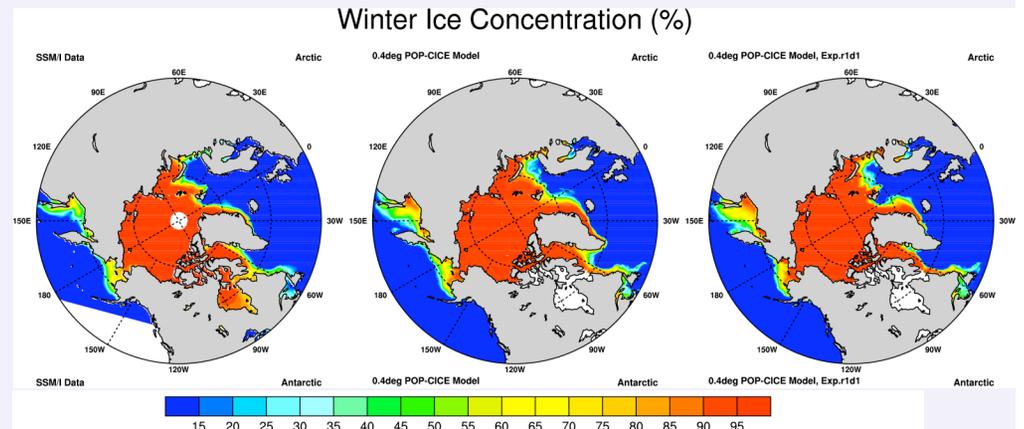
Ratio of Mesoscale: Total RMS sea surface height anomaly from (a) T/P and ERS 1&2 and (b) POP (McClean, Maltrud, & Bryan, 2006).



## Coupled Global 0.4° POP/CICE

### **Arctic Mean Winter Sea Ice Concentration (%) 1991-2001:**

Special Sensor Microwave/Imager data (LHS), stand-alone 0.4° Los Alamos sea ice model (CICE) and 0.4° global coupled POP/CICE (RHS). The coupled simulation was run for 1979-2003 and is forced with NCEP/NCAR synoptic atmospheric fluxes.



## Stand-Alone Global 0.1° CICE

•NCEP/NCAR synoptic forcing

•1985-1992

Antarctic sea ice thickness and drift for September 1992

Arctic sea ice thickness and drift for December 1989

Testing of the coupled global 0.1° POP/CICE code is underway.

