Evaluating the Ocean Observing System
Sea Surface Velocity

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Project Summary

The Integrated Ocean Observing System (IOOS) includes an array of moored and drifting buoys that measure SST and near-surface currents throughout the world's oceans. The success of the IOOS in resolving SST variations and reducing satellite SST bias is quantified in a quarterly report (Zhang et al., 2004). However, until this project was initiated, no comparable evaluation was performed for surface currents even though surface currents carry massive amounts of heat from the tropics to subpolar latitudes, leading (and potentially improving prediction of) SST anomalies. Current anomalies can also be an early indicator of phase shifts in the ENSO, NAO, and possibly other climate cycles. The GOOS/GCOS (1998) implementation report specified that the IOOS should resolve surface currents at 2 cm/s accuracy, with one observation per month at a spatial resolution of 600 km. There is currently no requirement for potential satellite bias in surface currents.

The primary goal of this project is to maintain a quarterly "Observing System Status Report for Surface Currents", which evaluates how well the IOOS satisfied the GOOS/GCOS requirements, and evaluate the evolution of the globally averaged potential satellite bias. This product is being used as a guide for future drifter deployments in conjunction with NOAA/AOML's Drifter Operations Center, a branch of the Global Drifter Program, and may demonstrate where future moored observations are necessary in order to meet these requirements.

The secondary goal of this project is to exploit recent research developments in order to derive high quality surface current products for the research community and general public. Specifics will evolve from year to year, and will be provided in the annual reports and work plans.