

Forecasting Eddy Ulysses

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Abstract

The Loop Current and its associated anticyclonic eddies have been familiar impediments to deepwater operations in the Gulf of Mexico. Last year was no exception as Eddy Ulysses, the main Loop Current Eddy (LCE) event of the 2004 season, lingered for several months in the central Gulf. In an effort to forecast Ulysses and other LCE events, we developed a new Eddy Forecast System, which became operational in September 2004. The forecast system features a revolutionary technology for model initialization and data assimilation. This technology makes use of dynamical understanding of physical processes controlling the eddy evolution providing a unique ability to reconstruct the ocean state from a limited set of observations. The ability to accurately reconstruct the ocean state at the time of forecast enables the system to predict the ocean evolution with significant skill. The forecast system was applied to forecasting Eddy Ulysses. Forecasts for one month forward in time were performed every week and made available in real time.

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