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Development of an assimilative operational model in the Gulf of Mexico

F. Counillon, L. Bertino

Nansen Environmental and Remote Sensing Center, Norway (francois@nersc.no / Fax: +47 55 20 58 01)

The TOPAZ system runs with HYCOM an Atlantic model with the advanced data assimilation method EnKF (Evensen, 1994). It gives nesting condition to a high-resolution assimilative model in the Gulf of Mexico. The main focus of the model is to produce forecasts of the Loop Current and shedded eddies with high current speed representing a hazard for the deep-sea operations, but also to study the impact of hurricanes as recently with Ivan (Sept 2004). An operational forecasting service named "FOCUS" has been developed, and is running operationally by "Ocean Numerics Ltd" (http://www.oceannumerics.com), a joint venture between NERSC, CLS, and Fugro GEOS.

This presentation will present the methodology developed for the forecast verification of the model result as well as the impact of a recent model upgrade on the forecasting capability.

This work takes part of EMOFOR (Envisat MOnitoring and FORecasting services for offshore industry), which is one of ESA's ongoing long-term earth observation market development projects addressing offshore operators' needs for environmental information. The EMOFOR project aims to provide oceanographic monitoring and forecasting services to operators who need information about currents and other oceanographic phenomena. Ocean currents have strong impact on floating constructions, risers and other installations in deep seas, especially eddies and fronts which represent maximum currents. Information on eddies and other extreme current events, both from in situ measurements, satellite data and model simulations is therefore essential for operators in deep water areas.