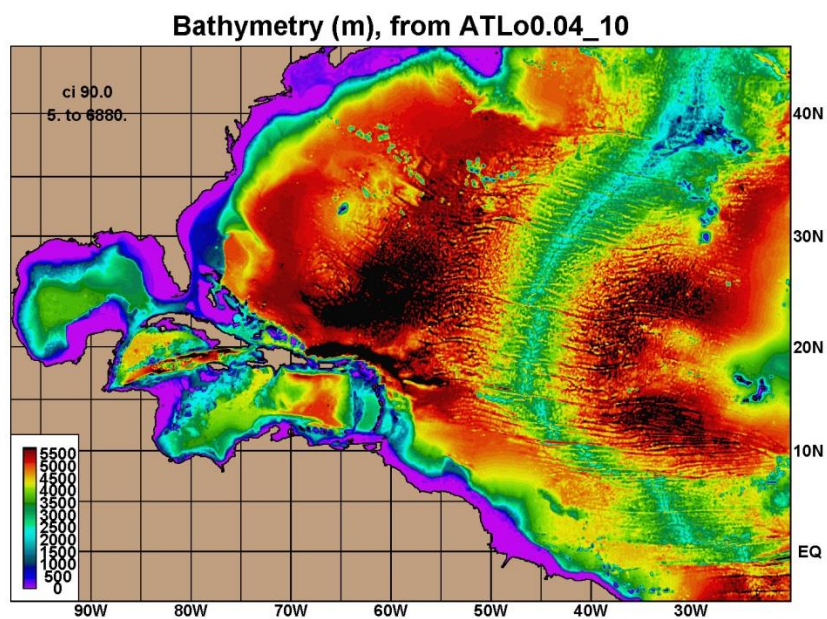


Development and Demonstration of a Relocatable Ocean OSSE System: Optimizing Ocean Observations for Hurricane Forecast Improvement and Broader Applications

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This is a project being carried out with University of Miami scientist. A new system to perform Observing System Simulation Experiments (OSSEs) recently validated in the Gulf of Mexico is being extended to provide NOAA the ability to evaluate new ocean observing systems, and alternate deployments of existing systems, in different ocean regions. The OSSE system will contribute toward providing the best return on NOAA observing system investments in terms of improvements realized in ocean analysis and prediction in support of a wide range of oceanographic applications, with a particular focus on improving forecasts of hurricanes and other storms. The first step will be to demonstrate that the OSSE system can be successfully ported to, and validated within, a new domain (Figure). This effort requires construction of an accurate software system that will permit both Observing System Experiments (which evaluate existing observing systems) and OSSEs to be efficiently set up and conducted within different regional, basin-scale, or global domains as appropriate to address specific observing system questions. A significant goal of this project is to identify optimal observing strategies that, through improved ocean forecast model initialization, will potentially lead to more accurate hurricane intensity forecasts for individual storms and improved seasonal forecast of the ocean thermal energy available to storms during upcoming hurricane seasons. OSEs and OSSEs will assist the design of rapid-response ocean observing experiments planned for the 2014 hurricane season and then evaluate impacts of these observations on improve ocean model initialization and also on evaluating and improving ocean model performance. Observing systems will also be evaluated for ancillary ocean applications such as forecasting marine debris transport and dispersion to demonstrate the full range of capabilities of the OSSE system.



Bathymetry in the Atlantic Ocean domain that will be used to perform the nature run required for the OSSE system and that will be used to demonstrate the capability of relocating the OSSE system to different ocean domains. Preparation for performing the nature run is underway.