Minerals Management Service

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MMS Study Probes Mystery of Loop Current in Eastern Gulf of Mexico

"Observation of the Deepwater Manifestation of the Loop Current and Loop Current Rings in the Eastern Gulf of Mexico (OCS Study MMS 2009-050)"

NEW ORLEANS – A study released by the Minerals Management Service today examines the circulation in the Eastern Gulf of Mexico (GOM) and sheds new light on the behavior of the Loop Current (LC) and Loop Current Eddies (LCEs), the relation between the upper- and lower-layer currents, and the variability of water mass characteristics in deepwater.

When the LC and the LCE are present in the Gulf near oil and gas activities, operators may have to curtail or amend their operations due to the strength of the current or eddy.

"The observations from this study will help MMS and other scientists better understand the Loop Current and improve our forecasting of its behavior in the Gulf of Mexico," said Dr. Alexis Lugo-Fernandez, the MMS physical oceanographer responsible for the study. "This is important because oil and gas activities in the deepwater Gulf are affected by the presence of the Loop Current and the Loop Current Eddies."

Prepared under a cooperative agreement by Louisiana State University's Coastal Marine Institute, *Observation of the Deepwater Manifestation of the Loop Current and Loop Current Rings in the Eastern Gulf of Mexico* chronicled the deployment in the Eastern Gulf of a deepwater mooring cable measuring more than 11,800 feet for two years. The study supplements information gathered from a previous three year deployment.

The mooring data suggest the LC and LCEs that dominate upper-layer circulation in the Eastern GOM also influence the deeper currents in the Eastern GOM.

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Dr. Lugo-Fernandez noted that a method to transmit significant energy in the form of heat to deep water in the GOM during the 2005 hurricane season was observed during this study. As sea levels rise near the center of tropical storms, the resulting higher pressure causes a small but measurable increase in temperature at all water depths. He explained that "Simply due to the large number of storm occurrences within the GOM, these findings represent an important process for transmitting energy to the deepwater."

Copies of this study, *Observation of the Deepwater Manifestation of the Loop Current and Loop Current Rings in the Eastern Gulf of Mexico*, (OCS Study MMS 2009-050), may be downloaded from the MMS website. Compact discs are available at a charge of $15.00 from the MMS Gulf of Mexico Region's Public Information office by calling 1-800-200-GULF.

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