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Engineering - Marine Science and Engineering; University of Texas Austin Researcher Reports Research in Marine Science and Engineering [The Response of Mixed Layer Depth Due to Hurricane Katrina (2005)]

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2024 MAY 6 (VerticalNews) -- By a News Reporter-Staff News Editor at Journal of Engineering -- Investigators publish new report on marine science and engineering. According to news reporting originating from Austin, Texas, by VerticalNews correspondents, research stated, "The ocean's mixed layer depth (MLD) plays an important role in understanding climate dynamics, especially during extreme weather occurrences like hurricanes."

Funders for this research include Office of Naval Research.

The news editors obtained a quote from the research from University of Texas Austin: "This study investigates the effects of Hurricane Katrina (2005) on the MLD in the Gulf of Mexico, using the Delft3D modeling system. By integrating hydrodynamics and wave dynamics modules, we simulate the ocean's response to extreme weather, focusing on temperature, salinity and MLD variations. Our analysis reveals significant cooling and mixing induced by Katrina, resulting in spatial and temporal fluctuations in temperature (~(+-)4 °C) and salinity (~(+-)1.5 ppt). The MLD is estimated using a simple threshold method, revealing a substantial deepening to ~120 m on 29-30 August during Hurricane Katrina in the middle of the northern Gulf of Mexico, compared to an average MLD of ~20-40 m during pre-storm conditions. It took about 18 days to recover to ~84% of the pre-storm level after Katrina."

According to the news editors, the research concluded: "Compared to the stand-alone FLOW model, the coupled FLOW+WAVE model yields a deeper MLD of ~5%. The MLD recovery and wave effect on the MLD provide insights from various scientific, environmental and operational perspectives, offering a valuable basis for ocean management, planning and applications, particularly during extreme weather events."

For more information on this research see: The Response of Mixed Layer Depth Due to Hurricane Katrina (2005). Journal of Marine Science and Engineering, 2024,12(4). (Journal of Marine Science and Engineering - http://www.mdpi.com/journal/jmse). The publisher for Journal of Marine Science and Engineering is MDPI AG.

A free version of this journal article is available at https://doi.org/10.3390/jmse12040678.

Our news journalists report that additional information may be obtained by contacting Wonhyun Lee, **Bureau of Economic Geology**, Jackson School of Geosciences, University of Texas Austin, Austin, TX 78713-8924, United States. Additional authors for this research include Jayaram Veeramony.

ORCID is an identifier for authors and includes bibliographic information. The following is ORCID information for the author of this research: Jayaram Veeramony (orcid.org/0000-0002-8701-4071).

Keywords for this news article include: University of Texas Austin, Austin, Texas, United States, North and Central America, Marine Science and Engineering.

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