

# LSU Engineers model forecasts chemical contaminants based on Katrina-flooded homes

February 4 2009

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A recent study by LSU engineers suggests that Katrina-flooded homes may contain harmful levels of contaminants, particularly aerosols and gases, which could expose first-responders, residents and any others entering such homes to serious and lasting health risks. The results could also be applied to similar flooding events that might occur in the future.

Nicholas Ashley, Louis Thibodeaux and Kalliat Valsaraj, all from LSU's Department of Chemical Engineering, developed a model describing various levels of contaminants, some of which are inhalable and therefore would not require direct contact for contamination to occur.

The paper was originally presented by Ashley, a Ph.D. candidate, at the national meeting of the American Institute of Chemical Engineers in November 2008, where it tied for first place with papers from MIT and the University of Iowa.

"The extensive sampling conducted by the Environmental Protection Agency and other government agencies post-Katrina was restricted solely to outdoor sediment," said Ashley. "We proposed that the material that gets inside the flooded homes could be different, and possibly more highly contaminated, than that deposited outside. It turns out that we were right."

The topic was an easy one to focus on, since all researchers involved

were witness to the aftermath of Hurricane Katrina.

"As researchers from Louisiana, impacted by a major natural disaster, we felt obligated to understand the environmental chemodynamic effects in the state and develop mathematical means of forecasting concentration levels in future occurrences," said Louis Thibodeaux, Jesse Coates Professor of Chemical Engineering. "This research was undertaken to fully explore what likely pathways of exposure a major catastrophe such as Hurricane Katrina might take in the future."

The study has already attracted a great deal of attention from peers within the engineering community, and earned the trio accolades from the publishing journal's editor-in-chief.

"This is an excellent and important study by one of the top research teams in the nation. It will help us better prepare first responders for the additional risks that may be posed by such events," said Domenico Grasso, editor-in-chief and dean and professor in the College of Engineering and Mathematical Sciences at the University of Vermont-Burlington. But this is not the first time LSU's College of Engineering has been responsible for such novel and innovative research.

"The Department of Chemical Engineering and the College of Engineering at LSU have long traditions of excellence in environmental science and engineering," said Valsaraj, chair of chemical engineering at LSU. "This is a continuation of that tradition."

Source: Louisiana State University

Citation: LSU Engineers model forecasts chemical contaminants based on Katrina-flooded homes (2009, February 4) retrieved 26 April 2024 from <https://phys.org/news/2009-02-lsu->

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