

# Measured Wind Waves in Lake Pontchartrain

## During Hurricane Katrina

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### ABSTRACT

A program for capturing episodic wave data in Lake Pontchartrain, LA using miniature rapidly-deployable wave buoys was implemented by the US Army Engineer District New Orleans. The data were intended for calibration and validation of numerical wave models used to investigate the risk of catastrophic flooding of New Orleans due to overtopping of the levees on the south shore of the lake. Several deployments during moderate storm events over the last three years demonstrated the viability of the approach, which relied on internal storage of the data and post-event recovery of the gages. Two days before landfall of Hurricane Katrina, three of the miniature buoys were deployed about « mile offshore, just north of the 17th Street Canal. Winds were from the northern quadrant when Hurricane Katrina made landfall east of New Orleans, placing the levees, and the gages, at the locus of maximum fetch during the highest wind speeds. By the next day it was evident that the gages had encountered the event that was only supposed to be simulated. Capturing the data, however, was dependent upon recovering the buoys as soon as possible from a post-storm disaster scene that few had envisioned. This paper describes the extreme episodic data capture strategy, the gages, the sampling scheme, and the deployment and recovery methodology. One-dimensional energy spectra and non-directional wave parameters from two adjacent gages are compared and the quality control process is described. The final quality-assured data set of the entire storm event, from two days before landfall through 6 days afterward is presented. Lessons learned to improve efficiency and reliability of the system are discussed.