

LAMBERT, W. JOE, Department of Geological Sciences, Box 870338, The University of Alabama, Tuscaloosa, AL 35487, PAUL AHARON and ANTONIO B. RODRIGUEZ, Department of Geological Sciences, Box 870338, The University of Alabama, Tuscaloosa, AL 35487

An Assessment of the Late Holocene Record of Severe Storm Impacts from Lake Shelby, Alabama

The historical record of severe storms on the Gulf Coast extends back only about 100 years. To better predict how the Gulf Coast will be impacted by future climate change and associated changes in storm frequency it is necessary to extend the severe storm record back to the time when global climate was different than today. A 3200-year record of severe storm impacts was reported from Lake Shelby, AL, using sand layers as proxies of storm intensity and frequency (Liu and Fearn, 1993). To enhance the understanding of the Lake Shelby environment and changes that may occur during severe storms seismic data, water chemistry profiles, sediment cores, radiocarbon dates, and geochemical measurements were obtained. The results indicate that Lake Shelby is a stratified lake in terms of salinity and dissolved oxygen. The lake floor is composed of two general lithologies, gyttja located below about 2 m water depth, and sand located along the entire perimeter of the lake. Radiocarbon dates and stable isotope data indicate that the lake was a brackish water lagoon prior to 800 ¹⁴C yrs BP when it became isolated and transformed into a lacustrine environment. Interpretation of sand layers recognized in sediment cores from Lake Shelby as indicators of severe storms may be ambiguous. New data suggest that severe-storm records based on geochemical stratigraphy may provide higher resolution and confidence than conventional overwash techniques.
