**Geoscience-Based Management of the Transgressive Mississippi River Delta: Considerations for the Next Century**

Kulp, Mark A.[1]; FitzGerald, Duncan [3]; Miner, Michael D.[2]; Georgiou, Ioannis [1] (1) Earth and Environmental Sciences, university of new orleans, New Orleans, LA. (2) Pontchartrain Institute for Environmental Sciences, University of New Orleans, New Orleans, LA. (3) Department of Earth Sciences, Boston University, Boston, MA.

Within the last decade a new urgency for detailed understanding of delta plain geology and processes has emerged on a global scale. This revitalization in delta plain research extends beyond traditional objectives that were aimed at determining delta plain stratigraphy and evolution because of their correlation with natural resources. Today this interest is driven by the necessity for predicting environmental changes driven by poor land-use practices and natural processes such as tropical cyclones, sea-level rise, and subsidence that are collectively converting land to water and destroying wetland ecosystems. The Mississippi River delta is at the heart of these issues and is used as a model for what may occur globally. For more than three decades, it has been widely recognized that the Louisiana coastal zone is rapidly degrading; acknowledgement of this condition by stakeholders and state and federal agencies has led to the formulation of a range of "coastal restoration" initiatives with the goal of protecting a nationally important economic infrastructure, culture, and globally significant ecosystem. Many of these initiatives are well conceived and may serve well the local interests; however, in reality these measures will only temporarily forestall the rapid degradation of coastal lands if current trends persist. Making sound decisions in light of the emerging concept of Transgressive Management along such a dynamic coastal zone includes identifying sedimentary deposits suitable for excavating to construct new land, finding semi-renewable sediment sources along the transgressing coastline, assessing the wetland soil impact of diversions, determining the most beneficial land-building sites through physical and numerical hydrodynamic and sediment transport modeling, and predicting subsidence across centennial-scale or shorter time frames of relative sea-level change. Numerous uncertainties and limitations exist in each of the proposed approaches, management practices, and processes. A single approach to managing delta plain degradation does not exist; rather we must quantify the agents of change and use this knowledge to design a multifaceted response that encompasses the reality of the ongoing and ultimate transgression.