

SEDIMENT TRANSPORT AND PROGRADATION IN THE ATCHAFALAYA-WAX LAKE OUTLET-CHENIER PLAIN SEDIMENTARY SYSTEM, SOUTHWEST LOUISIANA

Oscar K. Huh¹, Harry H. Roberts¹, Lawrence J. Rouse, Jr.¹, and Douglas A. Rickman²

POSTER SESSION ABSTRACT

Discharge of the Atchafalaya River, reaching the estuaries and Gulf of Mexico via the lower Atchafalaya and Wax Lake outlets is currently building sandy deltas at the river mouths and creating a mudstream flowing from river mouths along the southwest Louisiana coast. Aircraft and SPOT imagery show an acceleration in the buildup of the Wax Lake outlet delta has occurred within the last two years. It has now reached 65% the size of the Atchafalaya Delta. The mudstream formed by the rivers, flowing past the chenier plain coast, is now actively depositing fluid mud in bars along the coast. These have been seen to prograde some 180 m seaward into the Gulf of Mexico in the last two years. These mud banks are stabilizing through dessication. Two to four inch thick beds of mud separated by shell hash lamina are forming brick sized mud-crack polyhedrons. This fine to coarse sediment transformation results in armouring of the coast with cobble size sediment and stabilization of the newly accreted fine grained sediment.

Both remotely sensed multispectral and high quality photographic data have been collected from altitudes of 1500 m, 9000 m, and 21,000 m before and after cold front passages to form a data base for evaluating coastal change and suspended sediment transport pathways as a product of these important winter processes. Satellite imagery provides a longer-term perspective on coastal change. Remotely sensed data sets are augmented with ground measurements of coastal configuration, sedimentological framework, and water quality. These data are being utilized to develop an understanding of processes and coastal responses that cause changes in the Louisiana shoreline.

¹Coastal Studies Institute and Department of Geology and Geophysics, Louisiana State University, Baton Rouge, Louisiana 70803-7527

²Earth Resources Laboratory, NASA Stennis Space Center, Mississippi 39529