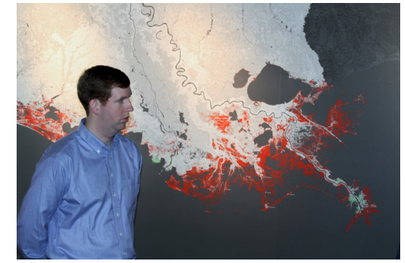
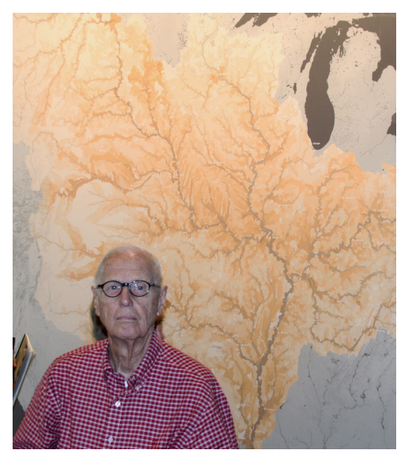
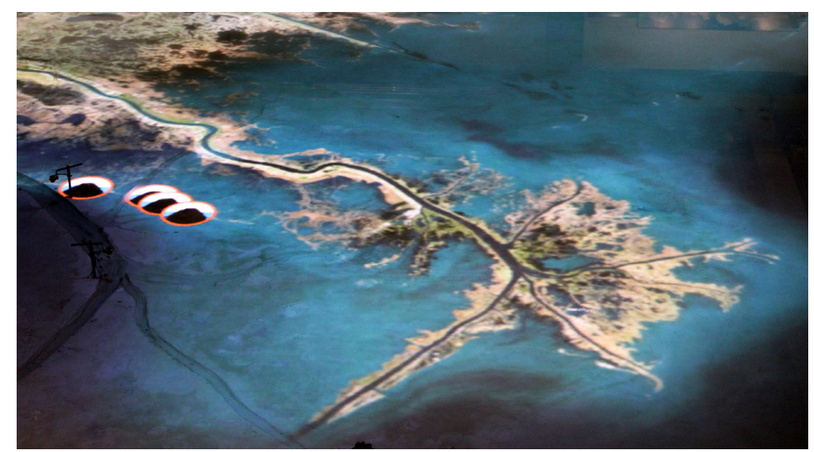
New Orleans Geological Society Tours Lower Mississippi River Model







On December 1st, members of NOGS, along with several geoscience students, had the privilege to be given a tour of the Lower Mississippi River Physical Model (http://coastal.la.gov/center-for-river-studies/). Hosting the tour were Dr. Clint Willson, Ph.D., PE, Director of the River Model, Mike N. Dooley, P.E. Professor at Louisiana State University Department of Civil and Environmental Engineering, and Mr. Joseph McClatchy, Coastal Protection and Restoration Authority (CPRA), Coastal Resources Program Specialist at the LSU Center for River Studies.

The River Model is enclosed in a 45,000-square-foot facility at The Water Campus, a 35-acre water research and engineering complex located along the Mississippi River near downtown Baton Rouge. The Lower Mississippi River Physical Model measures 90 feet by 120 feet and is a scale representation of approximately 190 river miles from Donaldsonville, Louisiana, to the Gulf of Mexico via Southwest Pass. The model depicts some 14,000 square miles of Southeast Louisiana at a horizontal scale of 1 to 6,000 and a vertical scale of 1 to 400. More than 4.5 billion latitude and longitude coordinates were used to define the model.

The model is constructed of more than 200 high-density foam panels measuring 5 feet by 10 feet by 1 foot and weighing 700 pounds each. Specially designed and manufactured plastic particles simulate transport of sediment grains within the Mississippi River. The model features 18 acoustic sensors that monitor water levels. According to LSU, those 18 acoustic sensors match the locations of similar stations along the actual Mississippi River.

River hydraulics are simulated by water circulated through the model, which can be adjusted to mirror seasonal and controlled floods. Approximately one hour on a model-run equals about a year's worth of time on the river. Accompanying the physical model are 20 digital projectors which are able to project the coastal landscape, and current and proposed restoration and flood-control structures onto the model of the river platform. This allows the state to model the hydrologic effects of coastal protection and restoration efforts, such as the proposed Mid-Barataria and Mid-Breton Sediment Diversions, on the Lower Mississippi River vessel navigation. The CPRA and the other state agencies are working with Corps of Engineers and federal officials to fast-track those diversions through the permitting process in order to bring them online as soon as possible.

Serving as training-ground for LSU students, the model is used to assist the State of Louisiana in the estimated $50 billion coastal restoration and protection efforts. The CPRA (http://coastal.la.gov/) headquarters, housing more than 150 researchers, planners and engineers, and the Water Institute of the Gulf (https://thewaterinstitute.org/) are also occupants of The Water Campus.