

SEISMIC ANALYSIS OF FALSE RIVER POINT BAR DEPOSITS OF THE MISSISSIPPI RIVER, LOUISIANA

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Abstract

The structure of point bar complexes of meandering rivers is not well understood. “Reactivation surfaces” are unconformable surfaces that exist inside the point bar along one of the inclined sandy deposits. I am hypothesizing that, at these reorientation zones, a thin interbed layer of silt or clay will exist, separating the adjacent sandy layers into “compartments.” The silt/clay layers will act as the boundaries of these sandy compartments. In my project, I will use self-collected seismic data to attempt to locate these thin layers. If we can verify their existence, we will have a more complete understanding of how point bar complexes form.

I have built a seismic acquisition landstreamer, which consists of 72 geophones attached to metal plates at 1-m spacing. The streamer will be dragged along the ground using a motor vehicle. The seismic source uses shotgun shells that will encounter less attenuation than p-waves. This will produce a better signal, with better response, that leads us to a higher-quality image. I will collect three 200 m two-dimensional seismic data lines in the False River point bar complex, north of Baton Rouge. I will process and interpret the data, resulting in a more complete view of the subsurface. A final goal for my project is to consider what the cause of the deposition of these interbed layers is.

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