

## ***Response to Anonymous Reviewer 2 on “Efficient retention of mud drives land building on the Mississippi Delta plain” by C. Esposito et al.***

**Christopher R. Esposito on behalf of Zhixiong Shen, Torbjörn E. Törnqvist, Jonathan Marshak, Christopher White**

*We appreciate the constructive reviews submitted by Anonymous Referees 1 and 2 (AR1 and AR2). We provide point-to-point responses to the AR2’s comments below, in underlined italics.*

The authors present an important counterpart to the present literature on delta restoration (primarily the Mississippi) that focuses on sands rather than on the dominant mud fraction. The demonstration is well done using one example of crevasse splay that the author generalize to the scale of the whole Mississippi delta, which is dominantly composed of crevasse deposits. One could ask if the crevasse they chose to study is representative and the authors should strengthen their case for this specific point.

*We have rearranged our figures so that Figure 2 (formerly Figure 4) is now featured more prominently in the introduction. This figure presents a regional topographic analysis of the Mississippi Delta to show that crevasse splay features are primary building blocks of the proximal overbank environment surrounding major distributary channels. We have also consolidated elements in the discussion (Section 4.2) to make it clear that the Attakapas Crevasse Splay represents, if anything, an upper limit on sand content (and therefore a lower limit on SRE). Furthermore, we have added references to classic literature (McFarlan, 1961; Frazier, 1967) to strengthen the point that our mud dominated study site is representative of proximal overbank deposits in the Mississippi Delta. These changes also address concerns by AR1.*

Restoration literature uses Wax Lake delta (open coast delta) as a model for crevasse splays, which is of course wrong both in terms of morphodynamics but also in practical terms of retention rates. Contrary to the idea that erosion at the coast is the main mode of land loss in the Mississippi delta, most land is lost on the delta plain and reconstruction via crevassing would be most effective if appropriate models are used. This study puts things straight, providing such a model and should inspire future efforts of restoration. The authors should underline these better in their conclusions.

*We have adjusted our conclusion to include language emphasizing the importance of appropriate depositional models in restoration efforts.*