

### **Contrasting Sedimentary Environments in Dynamic Wetland Settings**

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While coastal wetlands are often thought of as quiescent, low energy environments, these systems can actually experience a diversity of high-energy events. Here we present evidence that ecologically similar environments can lead to contrasting sedimentary records. We focus on two wetland systems: the Chenier Plain (CP) of southwest Louisiana and the fresh marshes of Pass-a-Loutre Wildlife Management Area (PALWMA) at the mouth of the Mississippi River. Both systems are low relief coasts, with hydrophyllic vegetation and experience long periods of quiescence. In present-day conditions, PALWMA wetlands experience both river floods and tropical cyclones while the CP wetlands experience primarily storms. In these sites, flood deposits tend to be cm - dm in length, with occasional mm-scale microstructure; sediment grain size alternates between coarse and fine material, and sediments are low in organic matter. On the other hand, storm deposits tend to be singular events of poorly sorted sediments that can be rich in particulate organic material if the deposits contain eroded marsh. Both event horizons can be preserved in the recent geological records. Subsidence rates at the mouth of the Mississippi River are so high that wetlands may be below wave orbitals or buried before large storm reoccur. Cheniers, as supra-tidal features, are relatively immune from the primary coastal working drivers.