



Time constraints, magnetic mineralogy and geochemistry for overpressured sediments from the continental slope in the northwestern Gulf of Mexico (IODP Exp. 308)

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Four late Quaternary sediment series were recovered from the Brazos-Trinity mini-basin IV and the Ursa region, offshore Texas and Louisiana to study in detail the sedimentation processes, slope stability, overpressure and fluid flow mechanisms of rapid sedimentation areas on the continental slope. Within the framework of this project, it is specifically important to understand the time frame of the studied processes. Due to a very high sedimentation rate (several m/kyr) under unconformable conditions the classical paleomagnetic approaches are not suitable for time constraints here. Magneto-mineralogic studies as well as electron microscopic analyses yield results on the highly complex magnetic assemblage, which includes various Fe-Ti mineral phases such as (titano-) magnetite, hemoilmenite, and hematite next to Fe-sulphides (mainly greigite and pyrite). We present a new approach to interpreting the combined rock magnetic and geochemical data to constrain a more detailed age model for these low-permeability sediments by using multi-parameter correlations as well as non-steady state modelling. Cyclostratigraphy of the hemipelagic sections for all drill sites is expected to additionally enhance these correlations. Therefore it is important to distinguish between the detrital/continental and postdepositional magnetic signal of the sediments.