lead to false results. Preliminary results show some success in using energy absorption to detect hydrocarbons. Examples are shown from the GOM and SCB which show conflicting AVO responses but consistent energy absorption.

Conclusions derived from the SCB, and elsewhere, allow us to reconsider assumptions made about the application of the techniques closer to home and permit a greater understanding of the geological processes behind the geophysics.

Guiding the Deviated Well Bore

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Cost-effective deviated drilling requires accurate determination of the drill bit in four-dimensional space, including its stratigraphic and structural position, as well as its trajectory orientation and rate. Failure to maintain the desired trajectory, for example by drilling out of the target horizon or below the oil/water contact, can cost millions. I introduce an analytical method for forward-modeling and actual drilling of deviated wells, that allows for rapid spatial locating of the bit, integrating data from measurement-while-drilling instruments. The method, based on a single parent equation with appropriate derivative formulas, predicts the bit's location and trajectory relative to stratigraphy, to fluid contacts, and to structure, including relations to fractures and fault displacements, thus providing feed-back information towards well-bore corrections and adjustments. Analysis of an offshore Gulf of Mexico deviated test well illustrates the effectiveness of the method, in which entry into the target zone, an undesirable exit into overlying nonproductive strata, and subsequent reentry into the target zone well accurately predicted tens to hundreds of feet in advance—real-time analysis, that is during actual drilling rather than my subsequent analysis, might have prevented the costly target exiting. As measurement-while-drilling technology advances, decreasing the spacing between the bit and measurement-while-drilling instruments, equating to decreasing the time lag between when the bit is at a specific position and when geologic data about that position is obtained, the locating, predictive and wellbore corrective capabilities of this method can only increase.

Extensive Salt Sheet Provinces of the Louisiana Shelf, Gulf of Mexico

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The existence and importance of horizontal salt movement and structuring on the Louisiana shelf is well defined by drilling, improved seismic technology and new understanding of salt tectonics. In this paper, we describe the extensive salt sheet provinces of the Louisiana shelf, and discuss related salt emplacement destruction, timing, associated depositional environments, and their significance for subsalt exploration.

On the northwestern Louisiana inner shelf and onshore coastal area, extensive salt sheets were extruded periodically into overlying sediments and coalesced into extensive salt canopies on the sediment-starved slope from late Eocene to early Miocene. These salt canopies were destroyed by prograding Oligocene and Miocene deltaic sediments, leaving extensive salt welds linking isolated shale ridges and salt remnants, and a large family of faults developed above the detachment. In the South Addition of the Louisiana OCS, the structural framework of the Plio-Pleistocene section exhibits a similar but more complex style along the shelf. Zones with extensive salt welds and detached large basinward-dipping families of faults dominate most of the area. They are separated by zones with isolated salt sheets and related small randomly-orientated faults.This pattern suggests uneven slope environments or, alternatively, sediment starvation and feasting during the emplacement of salt sheets from late Miocene to early Pliocene.