The value of these data is that they: (1) provide a practical correlation of images to the physical bedding in three dimensions: (2) point out the complexity of natural conditions as opposed to the simplified conditions shown by published depositional models: and (3) establish the merit of hand-picked dip patterns in defining reservoir stacking pattern and geometry.

The significance of this work to the oil industry is that the relationships established between outcrops and log data provide guidelines for improved stratigraphic interpretations of borehole images. This facilitates the prediction of reservoir geometry and lateral and vertical variations.

Interaction Between Salt Diapir Growth and Sedimentation: An Example from Côte Blanche Island Field, Louisiana

Radim A. Kolarsky
Texaco Exploration and Production, Inc., New Orleans, LA

This paper presents a detailed study of the evolution of a salt diapir from the Late Oligocene to Present based on 3-D seismic, well logs and biostratigraphic information.

There is a notable lack of faulting associated with the diapir. The only faults are a large counter-regional normal fault dissecting the diapir and a small number of synthetic and antithetic faults. This observation is in striking contrast with older interpretations of this field since its discovery in 1948. Those proposed a large number of radial faults extending outward from the diapir; in concert with the thinking of the time that all diapirs have to actively breach their overburden on their way to the surface, causing intense faulting. This study presents evidence that a diapir *can* reach the surface and enter a mature state without causing extensive faulting. This study suggests that the faults observed in the field are coeval with diapirism, but are related to deeper, lateral withdrawal of salt that is feeding the growing diapir. The faults are not caused by emplacement, but are related to diapir growth.

The reinterpretation of the field changes the reservoir interpretation. Missing section observed in wells high on structure does not represent normal faults, but rather unconformities caused by differential salt uplift. Individual reservoirs are not constrained laterally by faulting. Rather, complexities in their behavior are due to depositional facies variations. Most of the reservoirs are constrained updip by either salt or uplift-induced onlap. The new interpretation of the field has led to an extensive workover and development drilling program that has revitalized this mature field.

Novel Processing and Facies and Tectonic Results From North Louisiana Seismic Data

Valentin Makarov[1], Iosif A. Musbin[1], Eugeniy A. Kozlov[1], Chris J. Krotzer[2], and Allen Lowrie[3]
[1] VNII geofizika, Moscow, Russia
[2] Metairie, Louisiana, USA
[3] Consultant, Picayune, Mississippi, USA

The Structural and Formational Interpretation (SFI) technique developed in Moscow, Russia, principally for seismic reflections data, has been developed to provide an integrated analysis of time sections and provide results from proprietary procedures such as Spectral and Temporal ANalysis (STAN). There is a need for models, geologic and geophysical, in any interpretation (equally applicable to sequence stratigraphy). The SFI technique uses all stratal information available in a hierarchical frame, from individual sediment grains to members, formations, and series (as in reverse order, 1st, 2nd, 3rd, 4th, 5th orders in sequence stratigraphy). Formational complexes are determined, including spectral and temporal characteristics, with attention toward unconformity interpretation. Determination of hierarchical rank may be accomplished by using frequency ranges; 10-15 Hz, 20-25 Hz, and 50-55 Hz, for example. When formations are studied within the seismic data, they are designated as seismoformations (SF) with given geometries and dimensions. Often SFs (members and subformations) can be identified as certain seismic facies and, as such, related to a definite sedimentation environment, SFI becomes a mechanism for finer study by applying narrow band filters to locate specific facies (geometries, sizes, and spectral) and formations.

SFI techniques have been applied to a dip section in Winn County, northern Louisiana. Traditional tectonic interpretations have been of normal, down-to-the-basin/south-dipping faults. Trend analysis at various frequencies indicate numerous counter-regional faults with thrust components at depths of one and three seconds.

Seismic data with finer resolution indicates mound configurations near the basal Hosston, channel-like/concave-upward features in the Hosston, lens-shaped bodies (possibly slump blocks) in the Midway, and prograding wedges with possible carbonate buildups in the Mouringsport, providing additional seismic facies data not obtained from classical sequence stratigraphy.

SFI, with its dependence on digital data processing, frequency-based analysis, and seismic unit determination, in an excellent compliment to the visually-based, geometry-oriented sequence stratigraphy.