

magnetics in this area can also be considered prospective.

A preliminary geologic cross section is constructed using an integration of surface geology, well control, and seismic and magnetic data. Two-dimensional gravity profiles of the geologic cross section are computed and compared with the observed gravity. The interpreted subsurface geology is then modified to improve the match between the calculated gravity and the observed gravity while retaining the constraints imposed by the seismic and magnetic data.

The results of this study illustrate that potential field data can be a useful tool when integrated with available information. Use of these data provides an improved determination of the structural geology in the Idaho-Wyoming thrust belt, and provides attractive leads which ordinarily would be followed by seismic surveys. However, in this particular modeling study, the gravity data do not directly yield prospects, although they do yield an improved interpretation of the structural geology which is compatible with all other available data.

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#### Dispersal of Fine-Grained Sediment in Strongly Stratified Coastal-Boundary Layer

An investigation of the relation between dynamic oceanography and the dispersal of fine-grained sediment has been conducted on the unusually broad (100 to 250 km) and shallow (20 to 30 m) Mosquito Bank (Cayos Miskitos), off the east coast of Nicaragua. Exceedingly high rainfall (500 cm/year) on the coastal watersheds supplies enormous quantities of fresh water and suspended sediment to the nearshore area. A dynamic balance between the density and water-slope pressure-gradient forces, the Coriolis forces, the forces of internal friction, and the spatial acceleration of the water parcels produces a very distinct, turbid, brackish coastal-boundary layer (CBL). The dynamics are such that this CBL is dominated by a coastal jet 20 to 30 km wide, with a velocity of 50 to 70 cm/sec predominantly alongshore. Owing to the steadiness of the local trade winds, the jet appears to be a persistent feature, thereby minimizing large-scale exchanges with the shelf water beyond the CBL. Data on both suspended and bottom sediment clearly show the overriding influence of CBL dynamics on sediment dispersal. Despite the enormous input of terrigenous material brought to the shelf of about  $25 \times 10^6$  m<sup>3</sup>/year (five times more than is delivered to the entire U.S. Atlantic Coast), fine-grained sediments are distinctly confined to the vicinity of the CBL.

The vast expanse of this shallow bank outside the CBL, essentially free of terrigenous sedimentation, has developed into a suite of carbonate environments. Environments grade seaward from a relatively flat depositional plane dominated by *Halimeda*-rich aragonitic muds to a mid-shelf and outer-shelf zone of island-flank platforms and topographic highs associated with coral-algal reefs. Likewise, the bank-edge escarpment displays rough bottom conditions typical of reef development.

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#### Stratigraphic Correlation of Keathley Anomaly, Magnetostratigraphy of Tunisia

A magnetostratigraphic study of upper Mesozoic limestone sections in northeastern Tunisia combined with a study of existing radiometric data leads to a slight modification in the correlation of the marine magnetic anomaly sequence with the biostratigraphic scale. The base of the Keathley sequence (M25) lies in the upper Oxfordian with M22 being within the lower Kimmeridgian. The upper part of the section studied (uppermost Campanian-Maestrichtian) matches with data from previous studies. There is a tentative suggestion that the Cretaceous quiet interval, from 77 to 112 m.y.B.P., may contain a number of reversals of short duration. The nature of our samples prevents verification of this. The geomagnetic pole position for the Upper Jurassic is 62.0S 15.9E  $A_{95} = 7.9$ .

The ammonitico rosso sections suggest correlation which implies that although reduced in thickness there are no major lacunae in the sections.

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#### Subsurface Stratigraphy of Upper Devonian Clastics in Southern West Virginia

Studies of Upper Devonian shales and siltstones in southern West Virginia have resulted in a refinement of the stratigraphic framework used in characterizing the gas-producing "Devonian shales." Gamma-ray log correlation around the periphery of the Appalachian basin has extended the usage of New York stratigraphic nomenclature for the interval between the base of the Dunkirk shale and the top of the Tully Limestone to southern West Virginia. Equivalents of the Dunkirk shale and younger rocks of New York are recognized in southwestern West Virginia and are named according to Ohio usage.

Gas production is primarily from the basal black shale member of the Ohio Shale. Gas shows from older black shale units (Rhinstreet and Marcellus shales) are recorded from wells east of the major producing trend. Provided suitable stimulation techniques can be developed, these older and deeper black shales may prove to be another potential gas resource.

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#### Characterization of Rock Mineral and Pore Space Properties for Proper Reservoir Description and Formation Evaluation, Gulf Coast

No abstract available.

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#### Carbonate Facies Variation on Guadalupian Shelf Crest (Upper Yates and Lower Tansill Formations), Guadalupe Mountains, New Mexico