ISOSTATIC GRAVITY MAP OF EASTERN CARIBBEAN REGION

Thirty-nine newly reduced gravity stations are incorporated with other published and unpublished data to produce a Pratt-Hayford isostatic gravity map of the Antilles Islands and Venezuelan basin. Negative and positive isostatic anomaly belts of the West Indies island arc are delineated.

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CALCAREOUS NANNOPLANKTON AND BIOSTRATIGRAPHIC SUBDIVISION OF UPPER CRETACEOUS

Calcareous nannoplankton fossils of the Tertiary generally are well known, and their importance in stratigraphy has been amply demonstrated. Cretaceous calcareous nannofossils have been described in several papers, and many species can be recognized. Workable stratigraphic schemes for subdivision of the Upper Cretaceous have been slow to evolve because of (1) the great diversity of Upper Cretaceous assemblages, (2) the similarity of many coccolith species in this interval, and (3) the lack of continuous sections with adequate, well-preserved nannofossil floras.

Twelve zones based on calcareous nannofossils are recognized within the Cenomanian-Maastrichtian, approximating the degree of subdivision readily attainable with planktonic foraminifers. Four of the zones lie within the Cenomanian-Turonian interval, another four probably within the Coniacian-Santonian, and four within the Campanian-Maastrichtian. Many of the genera and species characteristic of the Upper Cretaceous evolved during the Cenomanian. The increase in diversity is a marked feature of Cenomanian and Turonian assemblages. Diversity remained more or less constant until the Maastrichtian, but evolution proceeded rapidly in some groups, such as *Arkhangelskiella, Kamptnerius,* and some other coccolith genera during the Coniacian-Santonian. The Campanian was a period of relative evolutionary quiescence, and is generally difficult to subdivide. The Maastrichtian is characterized by successive elimination of many species with a resulting decrease in diversity of the assemblages. The end of the Maastrichtian coincides with an abundance-diversity minimum marking a level of great change in calcareous nannoplankton fossil assemblages.

Reference sections for the zones which are recognized are in Kansas and Alabama. The section along the Alabama River between Selma and Millers Ferry is particularly valuable as one of the best exposed series of outcrops available. It also provides rich, diverse, well-preserved calcareous nannofloras at all levels.

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COMPARISON OF ELECTRICAL LOGS AND PHYSICAL PARAMETERS OF MARINE-SEDIMENT CORES

Spontaneous potential and modified point resistivity logs were made from select cores of marine sediments. The logs have been compared with cone penetrometer and vane shear measurements, shipboard pH and Eh tests, X-ray radiographs and photographs, and water content, density, carbonate content, and grain size analyses from the same cores.

Indications are that electric logs can be of value in identifying zones of interest which have subtle property differences, can be used to correlate from one core to another, and display apparent relations to other properties.

Improvements in instruments and techniques may lead to the *in-situ* quantitative application of electric logging techniques in all depths of water.

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REDEPOSITION OF PELAGIC SEDIMENT BY TURBIDITY CURRENTS; A COMMON PROCESS FOR BUILDING ABYSSAL PLAINS

Reworked pelagic detritus forms most graded beds from the upper 10-20 m of most abyssal plains. Coccoliths are by far the commonest detrital particle in many of the abyssal plains and are present with discoasters in the fine silt fraction, whereas reworked radiolaria, diatoms and planktonic Foraminifera are present in the coarse-silt and fine-sand fractions. Piston and gravity cores from the Argo and Gascoyne abyssal plains off northwest Australia contain graded beds which consist of pelagic detritus sorted into layers of either Radiolaria, diatoms or planktonic Foraminifera. These layers clearly define the basal part of many graded beds of different color shades. The source for most of the sediment must lie in the pelagic oozes of the adjacent abyssal hills and rises and not in the upper continental slope and shelf areas. There is increasing evidence that density currents commonly originate in the closer fan valleys and rises flanking the abyssal plains and uncommonly on the upper continental slope.

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LET'S IMPROVE OUR WILCOX SUCCESS RATE!

For the last three years exploratory success in the Eocene Wilcox Formation of southwestern Mississippi has averaged 6.7%, far below the success of 1951–1953 when an 11% success rate was achieved with less than a third of the wildcat wells now available for control. If we are to reverse this trend, the geologists must improve sampling and testing procedures in the field and more effectively utilize well data in the office and laboratory.

Serious errors in elevations and well locations, deviated hole problems, inadequate sampling of wildcat wells, and incomplete evaluation of oil shows have contributed to an excessive number of dry holes.

The present success rate can be improved by greater use of isopach maps to supplement structural contouring, by a better understanding of the relation of oil to regional subsidence and remigration, and by more careful evaluation of core analyses to differentiate between live oil and residual oil.

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PROBLEMS OF TECTONIC RELATIONS BETWEEN LESSER ANTILLES, VENEZUELA, AND TRINIDAD-TOBAGO

(No abstract submitted)

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