

# PHOTOGEOLOGIC APPLICATIONS IN THE GULF COAST

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## ABSTRACT

Much of the photogeologic interpretation depends upon late structural movement at the surface, either by rejuvenation or compaction around older structures. The Gulf Coast is fortunate in this respect; it is one of the more active provinces from the standpoint of tectonism and compaction, much more so than the mid-continent area, as an example.

Actually, there is far more surface structure mappable at the surface than many Gulf Coast geologists appreciate. By utilizing special modern photography, and some of the more detailed geomorphic procedures that have been developed, a surprising amount of structural information can be obtained.

Detailed study of the air photos over the entire state of Louisiana, the Gulf Coastal portion of Mississippi, and Alabama, and large portions of the Texas Gulf Coast have resulted in some interesting conclusions:

- (1) Only a minor amount of surface distortion is needed to create surface structural indications with the more sensitive geomorphic criteria; far less distortion than can be measured with usual well control, or shallow seismic interpretation.
- (2) A large percentage of the structural oil fields have recognizable surface indications.
- (3) Surface expressions associated with up and down-to-coast faulting are sometimes not as expected from subsurface studies.
- (4) Geomorphically, there is often an expression of the deeper causative structure directly above on the surface, even in grabens and on the downthrown side of normal faults.
- (5) Special photography and more detailed and experienced interpretative effort is needed on the Gulf Coast.
- (6) Because the surface has been neglected by many explorationists, and because of the importance of inter-well control to prospecting, detailed photogeologic interpretation is a very economical way to develop a large number of prospect leads. Through better localization it substantially reduces seismic costs.

Subsurface-surface relationships, and many air photo examples depicting the surface expression of pertinent oil fields and prospects, both from the Jurassic trend and the down dip Gulf Coast document the conclusions.

# GEOCHEMISTRY OF URANIUM IN THE CARIACO TRENCH

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## ABSTRACT

The geochemistry of uranium and thorium isotopes and of protactinium was investigated in cores taken from the Cariaco Trench. Though the sediments could not be dated, they showed some interesting features, characteristic to anoxic basins. Uranium is a very valuable marker for geological events.

Core P6603-2, taken at a depth of 940 meters, at the location of  $10^{\circ}25'N$   $64^{\circ}38'W$ , spans the late Pleistocene. At 356 cm there is a sharp break between the laminated sediments above and a homogeneous clay below. The uranium content shows a significant change at the 354-359 cm interval. The uranium present in this narrow band is only one third to one quarter of that found in both the sediments above and below, whereas the thorium and protactinium contents remain constant.