which result cover otherwise barren soil and rock in arid and semiarid regions of the southwestern United States. The brittle, fragile mats cover hundreds of square miles in areas undisturbed by livestock and man, and represent an accretional phenomenon in an otherwise generally erosional setting.

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Sacha Field of Ecuadorian Oriente

The Sacha oil field was discovered in early 1969 about 112 mi (180 km) east-southeast of Quito, Ecuador. It lies in the present-day axial region of the sub-Andean basin which in Ecuador is filled with Upper Silurian to Holocene sediments.

Sacha field is on a low-relief, faulted anticline about 17.5 mi (28 km) long. At the principal reservoir there are approximately 41,000 acres (16,400 ha.) under a vertical closure of 200 ft (61 m).

Principal reservoirs are sandstones of the Lower Cretaceous Hollin formation and the middle to Upper Cretaceous Napp formation. The Hollin sands, the main reservoir, are marine-fluvial, whereas the Napo sandstones are largely continental deposits. The basal sandstone of the Upper Cretaceous-Paleocene Tena formation is a secondary reservoir.

Production from the field commenced in July 1972 and, at the end of September 1979, over 164,000,000 bbl of oil had been produced. Gross recoverable reserves in the field are estimated at 633,784,000 bbl. Through September 1979, 89 wells had been drilled in the field, two of which were dry holes.

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Microfacies and Depositional-Diagenetic Model of Amapá Carbonate Rocks (Paleogene) of Foz do Amazonas Basin, Offshore NE Brazil

The extensive, thick Paleogene carbonate platform (Amapá Formation) of the Foz do Amazonas Basin developed next to the ancient shelf edge through four depositional cycles. This important stratigraphic-structural unit of the basin became the natural target of the search for potential hydrocarbon reservoirs.

The Amapá carbonate platform shows six environmental belts: slope, apron, coralgal platform, large foraminifer shoal, finger coral bank and restricted lagoon. These belts consist of zones of intense bioaccumulation by red algae and large foraminifers separated by transverse channels where the products of their mechanical reworking accumulated as calcarenites. At all times, a terrigenous environment consisting of fan deltas and lagoonal sediments existed immediately behind the carbonate platform. It was connected with the open ocean by transverse canyons cutting across the carbonate platform and filled with shales containing carbonate olistoliths.

Distinct reservoir conditions were generated by underground circulation systems during episodes of subaerial exposure at the end of each depositional cycle when high-stand sea level changed to low-stand conditions. Excellent porosity exists in all microfacies except for the facies of the apron and slope belts, and consists of mainly enlarged interparticle and moldic porosity with a minor contribution of intercrystalline porosity related to dolomitization by mixing of freshwater and marine waters.

The Amapá platform is unique in the geologic record and the only modern analog is the Belize shelf. However, similar conditions of underground circulation and dolomitization by mixing waters exist today at a comparable scale in Florida and Yucatan.

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Geologic and Geophysical Investigation of Part of Outer Continental Shelf and Upper Continental Slope, Northwest Gulf of Mexico

The continental slope in the northwest Gulf of Mexico ranges in width from 110 km (59 nmi) off the Rio Grande to 240 km (130 nmi) off Louisiana. Throughout its Cenozoic history, this continental margin has increased its limits through the progradation and aggradation of clastic sediments on a broadly downwarped and subsiding basement. Eustatic changes in sea level in response to Pleistocene climatic fluctuations have provided for the deposition of these transgressive and regressive deposits. Rapid Pleistocene sea-level changes are responsible for accelerated deposition and extension of the continental margin.

Lowering of sea level moved nearshore sedimentation to the outer edge of the continental shelf. Shelf outbuilding occurred as deltas prograded over the shelf-slope break. Growth faults cut the sediment column in response to this rapid sedimentation. Marine transgression resulted in a decreased sedimentation rate, depositing a transgressive sequence which capped the regressive clastics. The continental slope in the northwest gulf is further marked by diapiric salt uplifts of variable size.

Correlation of recent high-resolution seismic profiles with drill-core data in a selected location on the outer continental shelf and upper continental slope off the Texas Gulf coast, together with textural, micropaleontologic, and paleomagnetic information and sparker data, yield a history of the late Pleistocene to recent. Analysis of shelf-edge progradation and its relation to sedimentation and structural activity on the continental slope yield additional information with respect to the Pleistocene to recent depositional history.

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Paleogeographic Evolution of Late Paleozoic Taos Trough, Northern New Mexico

The Taos trough (or Rowe-Mora basin) of northern New Mexico was one of several tectonically active cratonic basins associated with the late Paleozoic Ancestral Rockies. As the basin and adjacent uplifts evolved, the depositional systems and paleogeography varied in conjunction with changing tectonic stability, fluctuating