

ciently large to allow hydrocarbon maturation at depth, if suitable organic material is present.

Our initial results suggest that the Aleutian basin deserves further exploration as a site for possible hydrocarbon accumulations.

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Speculations on Hydrocarbon Potential of Deep-Water Basins in Outer Southern California Borderland

Significant accumulations of hydrocarbons may be present within Miocene and younger strata that fill several deep-water basins in the outer southern California borderland. Multichannel seismic reflection and sonobuoy refraction profiles across one of these basins (informally termed Patton basin) reveal a moderately thick sedimentary section overlying acoustic basement. Patton basin lies between the northern segments of the Patton and Santa Rosa-Cortes Ridges and has an average seafloor depth of about 1,200 m. The sedimentary section within Patton basin ranges from 1.6 to 3.5 km in thickness, with the thickest part (2 to 3.5 km) located at the northern end of the basin. Tanner basin, which joins Patton basin at the south, probably contains a greater thickness of sediment.

Strata that crop out on the adjacent ridges can be traced beneath Patton basin on acoustic-reflection profiles. Based on samples from these ridges, acoustic basement within the basin consists of rocks that are assigned to the Franciscan assemblage. Acoustic basement is overlain unconformably by about 1,500 m of lower and middle Miocene strata. These strata are faulted and folded and are in turn unconformably overlain by as much as 2,000 m of less deformed late middle Miocene and younger strata. Overall, the basin appears to have stratigraphic and structural characteristics that are similar to the hydrocarbon-producing parts of the onshore Santa Maria basin.

Several characteristics of the Patton basin sediment make this basin and adjacent outer borderland basins favorable targets for hydrocarbon exploration: (1) Organic geochemical analysis of bottom samples from outcrops and well data indicate that the lower and middle Miocene strata filling the lower half of the basin are good to excellent potential source rocks. (2) Based on seismic reflection profiles and a nearby DSDP Site, sandstone of good reservoir quality may unconformably overlie the older strata. (3) Data from DSDP Site 467 suggest that strata within the borderland basins have been subjected to higher temperatures than time-equivalent, marginally mature strata that crop out on adjacent ridges. (4) Numerous structural and stratigraphic traps are present.

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Palynomorphs From Holocene Sediments of Basins in Southern California Continental Borderland

A suite of 17 box core samples taken along an onshore-offshore transect across the southern California continental borderland representing Tanner, Santa Monica, San Pedro, Santa Catalina, and San Nicolas basins were analyzed for palynomorph content. Dinoflagellate

cysts, acritarchs (organic-walled phytoplankton), and spores and pollen of terrestrial plants are present in all samples. Dinoflagellate cysts and acritarchs are more common in samples from Santa Monica and San Pedro basins, and show a general decrease in abundance with increasing distance from shore. Cyst genera include *Leptodinium*, *Lingulodinium*, *Nematosphaeropsis*, and *Spiniferites* (referrable to the thecate genus *Gonyaulax*) and species of *Peridinium*. *Lingulodinium machaerophorum* Deflandre and Cookson (= *Gonyaulax polyedra* Stein) is the dominant species in all samples. Spores, pollen, and other plant tissue fragments provide an indication of the terrestrial component of these sediments.

Evidence of reworking of older material into recent sediments is suggested by differential stain uptake observed among individual specimens of phytoplankton and pollen.

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Basin-Edge Tectonics and Stratigraphic Development, Southern San Joaquin Valley, California

No abstract.

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Modern and Ancient Coastal Sedimentary Facies, Monterey Bay, California

Depositional processes and sedimentary structures in both barred and non-barred nearshore environments of the Pacific Coast vary systematically with water depth. These variations allow the construction of idealized progradational sequences of sediments deposited along a wave-dominated coastline. The idealized sequences are very similar to the vertical sequences of sedimentary structures preserved in Pleistocene marine terrace deposits exposed along the margin of Monterey Bay.

The central Monterey Bay coastal region has been a subsiding depocenter for marine, fluvial, and eolian sedimentation throughout the Quaternary. It provides an opportunity to study the role of climatic change (including fluctuating sea level) in controlling patterns of Quaternary sedimentation and terrace formation along the non-uplifted portions of the California coastline. Most of the fluvial sediment in these regions was deposited during intervals of rising sea level, hence is out of phase with marine and eolian sediments deposited mainly during intervals of lowering sea level. In combination, however, these deposits form suites of sediments by which glacio-eustatic cycles can be recognized. Evidence of at least 11 such cycles is present within the Quaternary deposits in the north-central Monterey Bay region.

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Holocene Foraminiferal Distribution Patterns on Shelf and Slope, Yakataga-Yakutat Area, Northern Gulf of Alaska

Foraminiferal distribution patterns in the northern Gulf of Alaska are interpreted as representing seven faunal assemblages. Three sublittoral and three bathyal