destroying hundreds of homes and buildings and filling the flood plains of the Toutle and Cowlitz Rivers with thick mud deposits. The mountain continued to erupt throughout the day, sending plumes of ash as high as 62,000 ft (18,897 m) into the atmosphere. The eruption spread pyroclastic ash 150 to 200 mi (242 to 322 km) eastward, covering parts of eastern Washington with 2 to 3 in. (5 to 8 cm) of ash. The ash continued across the United States and eventually circumnavigated the world.

Continuing seismic activity (including harmonic tremors), steam and gas venting, dome formation, periodic major eruptions, and pyroclastic flows keep residents, officials, and scientists speculating about what Mount St. Helens may do in the future. Expectations are that Mount St. Helens may continue erupting for the next two decades.

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Characterization of Uranium Ores from House-Seale Deposit, Catahoula Formation, Texas Coastal Plain

Sandstones and mudstones of the House-Seale deposit, Live Oak County, Texas, contain up to 8,000 ppm uranium as U_3O_8; however, no uranium minerals have been detected in the ore. Autoradiography of slabbed rocks and thin sections show that uranium is inhomogeneously distributed throughout the ore on both a macroscopic and microscopic scale. Thin-section petrography, scanning electron microscopy, and electron microprobe examination of these enriched regions proves that uranium is associated with platy, layered grain-coating material and clayey matrix between grains. Selective dissolution analysis indicates that 61 to 64% of total uranium is held on ion exchange sites and 36 to 39% is associated with amorphous aluminosilicate material. No significant uranium concentrations are found in amorphous iron or manganese oxides or hydroxides, nor is uranium present in other minerals.

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Abnormal Formation Pressures: Recognition, Distribution, and Implications for Geophysical Prospecting, Brazoria County, Texas

The Frio and Anahuac Formations in east-central Brazoria County, Texas, were deposited in deltaic to prodeltaic environments during the active and waning stages of growth of a piercement-style salt diapir, Danbury dome. Growth faulting is prominent in the area and abnormal pore fluid pressure is present in much of the section.

Borehole shut-in pressure measurements, drilling mud density records, and shale transit times are used to interpret distribution of subsurface pressures. Three pressure regimes are defined in terms of vertical pressure gradients: normal pressure (0.465 psi/ft), soft overpressure (0.465 to 0.70 psi/ft), and hard overpressure ($>$ 0.70 psi/ft). Distribution of these pressure regimes is controlled by the distribution of sands in the sedimentary section, and the extent of flow continuity within them. Flow continuity can be cut off by stratigraphic pinch-out or by faulting.

Comparisons of stratigraphic thicknesses measured in boreholes with those derived from seismic reflection data show significant mis-ties if a single velocity function is used for time-depth conversion throughout the area. These mis-ties result from lateral variations in acoustic velocity which can be related to the distribution of normally and abnormally pressured zones in the subsurface.

Abnormally pressured zones have lower acoustic velocities than the normally pressured zones above and below them. Where these abnormal zones exist and dip significantly, lateral velocity variations should be expected.

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Source-Rock Potential of Austin Chalk, Upper Cretaceous, Southeastern Texas

The Austin Chalk is an impure "onshore" chalk deposited marginal to the Gulf of Mexico during the Late Cretaceous. The chalk is a reservoir, producing petroleum from the matrix and from fractures in the rock. In addition, the lower part of the Austin Chalk contains 0.5 to 3.5% organic matter, with some localized zones containing 20% organic matter.

The organic-rich chalks occur principally in deeper (greater than 5,000 ft or 1,524 m), basinward cores, whereas the organic-poor chalks occur in shallow cores on the San Marcos platform. The organic matter is similar in the chalk and in the underlying Eagle Ford Formation, although there is typically more organic matter in the shales of the Eagle Ford Formation. The kerogen is amorphous, sapropelic (Type II) kerogen that yields large amounts of saturated and aromatic hydrocarbons upon burial. Although hydrocarbon generation commences at about 2,000 ft (610 m) burial, the peak zone of petroleum formation is between 6,000 and 8,000 ft (1,828 and 2,438 m). At these depths, mature petroleum occurs in the matrix and in fractures in the chalk, whereas at greater depths gas is forming.

The hydrocarbons in the chalk include those formed in place and those formed elsewhere (probably the Eagle Ford Formation) which have migrated into the chalk. Due to increasing generation and migration of hydrocarbons with depth, the petroleum becomes lighter and enriched in saturated and total hydrocarbons with depth. At less than 3,000 ft (914 m), the petroleum is commonly heavy and depleted in saturated and total hydrocarbons, due to biodegradation or to the immaturity of the autochthonous oils.

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Diagenesis and Secondary Porosity in Vicksburg Sandstones, McAllen Ranch Field, Hidalgo County, Texas

Lower Vicksburg sandstones (Oligocene) at McAllen Ranch field in Hidalgo County, Texas, consist of thin sandstones interbedded with shales. The sands were deposited by turbidity currents as channel and overbank deposits. The sandstones produce gas from depths of 9,300 to 15,000 ft (2,800 to 4,500 m). Depositional patterns were controlled by a diapiric shale uplift and related faults. Petrographic analyses show that primary porosity was reduced during early diagenesis owing to calcite cementation. However, dissolution of calcite cement, feldspar, and volcanic rock fragments, which occurred after deep burial, led to secondary porosity development. Dissolution is evidenced by the formation of intergranular porosity, oversized pores, grain molds, and by microporosity within individual grains. Dissolution was followed by precipitation of quartz overgrowths, formation of authigenic clay minerals (kaolinite, chlorite, illite, smectite, and vermiculite), and by precipitation of iron-rich calcite cement. Scanning electron microscopy confirms that clay minerals are primarily authigenic and uniformly distributed. Chlorite grain coatings