and the rate of decline in water levels has decreased significantly. The rate of subsidence has decreased since September 1976. As a result of increased use of surface water, groundwater production decreased about 303 million L/day and groundwater levels rose as much as 18 m in the central part of the region in 1977. Because of the pressure recovery, the rate of subsidence should decrease substantially in some critical areas.

The Harris-Galveston Coastal Subsidence District was created by the Texas Legislature in 1975 to cope with the problem of land-surface subsidence. The District plans to control subsidence by controlling and regulating groundwater pumping.

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Dolomitization—Recent Experimental Approaches

Experimental studies of the kinetics of reaction of calcium carbonate with magnesium-calcium chloride solutions indicate a solution-reprecipitation mechanism with a cation-ordered protodolomite as the initial reaction product. Nucleation of ordered dolomite is extremely difficult at low temperatures and is an important factor in the reaction. The kinetics of the reaction are strongly dependent on temperature and on the reactant (calcite or aragonite). Experimental dolomitization of aragonite at 100°C and atmospheric pressure has permitted study of the reaction under conditions approaching those of natural sedimentary environments. These studies indicate that other important kinetic factors include the ionic concentration (salinity), the Mg^{++}:Ca^{++} ratio in the dolomitizing fluids, and the presence of strongly hydrated ions. Certain amino acids and soluble proteins severely inhibit the reaction, but may be removed by oxidation. The results of these experiments may aid in the interpretation of the processes involved in sedimentary dolomitization.

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Oakville Formation of Texas Coastal Plain—Depositional Systems, Composition, Structure, Geohydrology, and Uranium Mineralization

The Oakville Formation consists of deposits of a bedload fluvial system composed of at least four major and several minor rivers that flowed across the Miocene Texas coastal plain. Rivers of the southwestern part of the system transported polymictic sand and gravel containing abundant volcanic clasts; stream deposits of the northeastern area are uniquely rich in reworked carbonate-rock fragments. Structures suggest highly variable to ephemeral flow and extensive development of crevasse splays. Bounding flood-plain muds consist of kaolinitic calcium to sodium montmorillonite. Illite is present locally.

Hydrogeology and uranium mineralization are strongly influenced by a broad belt of subjacent Wilcox (Eocene age) growth faults. Mineralization and alteration patterns reflect the complex flow of groundwater within a stratigraphically and structurally compartmentalized aquifer. With evolution of the Oakville aquifer system, faults have acted both as flow boundaries and as loci for intrusion of deep-seated highly reducing brines and shallow meteoric groundwater, further obscuring primary ore-forming processes. Volcanic glass within and possibly above the Oakville provides a probable source for the uranium.

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A New Look at Geology of Togo By SLAR

Imaging of Togo, West Africa, with Side-Looking Airborne Radar (SLAR) in 1977 provided the data required for the production of semicontrolled radar mosaics at a scale of 1:200,000. These mosaics revealed significant errors in the existing geologic and topographic maps of Togo. The mosaics also served as a base for the generation of a new geologic map of Togo. The use of two opposing radar "look" directions helped in making numerous revisions, such as identifying previously unknown structural features, age relationships, refinement of unit boundaries, and the repositioning of structural features and lithologic units. Positional errors in some cases involved relocation of points by as much as 12 km and reorientation of major faults by as much as 22°. Although the value of radar's synoptic view and low illumination angle for detecting geologic features has been clearly demonstrated, the utilization of a SLAR mosaic for rectifying the location and orientation of geologic features has not received sufficient attention.

Geologic mapping of Togo was initiated as early as 1905, and sporadic but continuing revisions occurred through 1973. The fact that numerous investigators with diverse interests have participated in subsequent mapping, without apparent rectification of major errors in position and orientation, suggests that errors on earlier maps were incorporated into more recent versions. That this is the case is emphasized by the lack of congruence of major, topographically expressed rock units and structures in recently published, small-scale maps with their well-defined counterparts on the radar mosaics. Furthermore, it suggests the seriousness of the error of geologic-map revision utilizing a previously published map as a base without verification of its geometric fidelity.

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Probing Bermuda's Lagoons and Reefs

Preliminary seismic reflection profiling of Bermuda's lagoons, using the Uniboom system, followed by reconnaissance drilling, has shown that the lowest horizon on the seismic profiles is a strongly reflecting layer, almost horizontal, and with surface roughness of 1 to 3 m. It lies at a depth of about 19 m below sea level near the center of the platform and slopes very gently to 32 m beneath the rim. It appears to be the foundation upon which the rim, reefs, and lagoons have developed, culminating in the present configuration.

Above this surface there are Pleistocene reefs, thick