wealth of data needed and to evaluate and identify prospect areas, computer technology is employed. Through computerization, inputs varying in scale and information content can be registered to a common scale and integrated into a single geographic data base. Establishment of a geographic data base provides the explorationist a simpler, faster, and more cost-effective method to plan geophysical programs and field work. Most important, investment decisions can be made with greater confidence when all pertinent information is current and accurately presented. Several models illustrate that satellite technology applied to exploration allows costly on-site investigations to be focused on the most promising targets.

RAPOPORT, L. A., and G. C. GRENDER, Virginia Polytechnic Inst. and State Univ., Blacksburg, VA

Field Size Distributions and Exploration Efficiencies by Depth Zones in Gulf Coast Area

The results of an extensive series of analyses of the field size distributions and discovery rates observed in the main producing provinces of the United States focus on the successive depth zones in the onshore Gulf basin. The analyses deal with the relationships between exploratory drilling density (feet/cubic mile of sediment) and (a) corresponding field size distributions, and (b) hydrocarbon discoveries. They distinguish between oil and gas. This analysis by depth zones can be used to develop estimates of the ultimately discoverable hydrocarbon resources in the various producing zones of United States basins.

REYNOLDS, LESLIE A., U.S. Geol. Survey, Woods Hole, MA

Modern Benthic Foraminifera from Gyre Intraslope Basin, Northern Gulf of Mexico

The Gyre basin, situated 155 mi (250 km) off the Texas coast, is the site of a preliminary study of living benthic foraminiferal assemblages from oxic (oxygenated) intraslope basin environments. The Gyre basin was formed by the blockage of a submarine canyon by rising salt diapirs, and is similar to other intraslope basins in the northern Gulf of Mexico. The environmental conditions are markedly different at the basin rim and floor, and this is reflected in the composition of the modern foraminiferal assemblages. Rim sediments are composed primarily of pelagic tests and detrital clay particles which have accumulated at a slow and steady rate, whereas the deeper sediments are derived chiefly from the slumping of basin walls, the result of diapiric uplift. Sediment accumulation is considerably faster on the bottom than on the rim of the basin, and occurs intermittently. Thirty-seven species of living benthic Foraminifera, including *Ammobaculites gyrensis* n. sp., and 82 nonliving species are found in rim sediments, but samples from the deepest region of the basin contain only one living specimen within the 26 species collected there. A total of 38 living and 85 dead species was identified. Sediment accumulation rate and mode appear to determine assemblage composition.

ROBERTS, W. H., III, Gulf Oil Exploration and Production Co., Houston, TX

Gulf Coast Magic

Our Gulf Coast region is, in a sense, magical. It is widely thought to hold the most important oil and gas reserves of the lower 48 United States—found and unfound. This northern limb of a continuously evolving petroliferous basin may be the finest place in the world to observe and confirm the workings of an active oil and gas-making system. Not only is it remarkably accessible, but the quantity and variety of information available are probably unmatched anywhere.

A few simple, but vital, principles may help to explain the Gulf Coast magic. Those who know the Gulf Coast are qualified to judge the validity of the reasoning.

Attention centers on interactive sediment-fluid relationships characteristic of shelf and hinge-line situations. Differential compaction, subsidence, growth-faulting, diapirism, and abnormal pressures are relevant to water movement. The hydrologic interplay of offshore compaction effluent and onshore meteoric recharge enhances the entrapment of waterborne materials (especially hydrocarbons) in the coastal belt. Probably, the same magic can be projected backward (and forward) in the geologic history of the Gulf Coast province, explaining many of the inland productive trends paralleling the present coastal belt.

ROLLING, T. W., Continental Resources Co., Houston, TX

Future Energy Invulnerability

The forces of supply and demand in a free-market economy will result in increased supplies and lower consumer prices for energy resources in the United States. A review of post-World War II trends in oil and gas resources shows the relationships between market price and the supply of oil and gas, and verifies the importance of profits in the economic cycle of energy development.

One of the main points considered in this analysis is the effect of government regulation on the oil and gas markets. Government price ceilings on both oil and gas have encouraged excessive consumption of scarce oil and gas resources while at the same time discouraging producers from searching for new supplies. This excess demand, coupled with the lid on prices, has resulted in shortages in several periods and a general misallocation of resources in the energy sector.

The abundance of domestic reserves of oil and gas remaining to be discovered in the United States is ample to carry our nation into the next century without excessive dependence on unstable foreign sources of supply. Free-market forces and successful "team effort" exploration will not only allow the efficient development of those reserves, but will also bring forth supplies of substitutes for oil and gas, such as coal, nuclear, thermal, wind, and synthetic fuels, as prices and costs warrant.

SANNESS, TORSTEIN, Saga Petroleum U.S., Inc., Houston, TX, and DAVID HANCOCK, Hunt Energy Corp., Jackson, MS

Catahoula Creek Field—a Complex Structural and Stratigraphic Trap in Downdip Cotton Valley Sands

Catahoula Creek field, one of Mississippi's most significant discoveries, is located in Hancock and Pearl River Counties approximately 14 mi northwest of Bay St. Louis. The field was discovered in August 1981, with the successful completion and testing of the 1 Rhoda Lee Brown, Sec. 28, T6S,R15W, by Hunt Energy Corp./Saga Petroleum et al. Stabilized flow rates of 10 to 13 MMCFGD were encountered with pressure of 9,100 to 9,250 lb through 28/64 in. choke from Cotton Valley sands at a depth of 19,816 to 20,038 ft (6,039 to 6,100 m). A total of 114 ft net sand was perforated and acidized. Two additional field wells have been drilled (a western offset in Sec. 29, T6S, R15W,