BACKUS, MILO M., Geophysical Service, Inc.

SEISMOLOGICAL SIGNAL PROCESSING

The use of least-mean-square-error single and multichannel linear filtering for the reversal of signal alteration resulting from the seismic propagation path provides useful results in earthquake analysis and exploration seismology. The importance of the dispersive normal modes of propagation in layered elastic media and the time invariance of the seismic propagation medium are important, unique features of the seismic problem which contribute to the usefulness of this type of signal processing. Examples from exploration and earthquake seismology illustrate the techniques.

BALDWIN, THOMAS A., Humble Oil and Refining Co.

PACIFIC OFFSHORE EXPLORATION 1949–1965

The course of exploration offshore from the States of California, Washington, and Oregon can not be reduced fully to statistics. Three ingredients of the offshore effort are money, energy, and intelligence. The first two ingredients can be described in dollar expenditures (219 million dollars for leases alone), in miles of seismic line shot, or number of holes drilled. Contour maps of the dollar expenditures in the various areas of interest indicate how the first ingredient (money) was used, but contour anomalies on these maps suggest that the third ingredient (intelligence) either cannot be analyzed fully or has not been used in proper proportions. Vast areas of the offshore province remain unleased and unexplored, but past experience suggests that expansion into the new areas must be accompanied by expanded use of exploration intelligence if profits are to be realized.

BANDY, ORVILLE L., University of Southern California

RESTRICTIONS OF THE ORBULINID DATUM

Faunal evidence and potassium/argon dates suggest the approximate correlation of the Saucesian Stage of California with the Burdigalian Stage of Europe. The *Orbulinid datum* marks the approximate base of the Burdigalian Stage in deposits of deep-water origin within tropical and warm temperate areas. Orbulinids appear well above the base of the Burdigalian and Saucesian in temperate areas. Thus, it is suggested that it required from one to about two stages for orbulinids to adapt to the temperate zone after their initial appearance in the tropics.

BANDY, ORVILLE L., JAMES C. INGLE, JR., AND JOHANNA M. RESIG, University of Southern California

FORAMINIFERAL BIOFACIES, SANTA MONICA BAY, CALIFORNIA

Santa Monica Bay embraces an area extending more than 45 km. between Point Dume on the north and Palos Verdes Point on the south, and from the shoreline out into Santa Monica basin. Principal features are the mainland shelf (0 to 80 meters), the basin slope (80 to about 900 meters), and the basin floor which extends down to about 938 meters. The mainland shelf is a truncated positive feature separating the Santa Monica basin on the west from the filled Los Angeles basin on the east. Exposed Miocene-Pleistocene rocks on the shelf suggest this feature was formed during the Quaternary. Relict upper Pleistocene-Holocene sediments and faunas provide evidence of an episodic transgression of sea-level across the shelf.

Analysis of 85 bottom samples indicates that Recent sediments become finer offshore with the exception of relict grains, and nitrogen values generally are higher in the deeper, fine-grained sediments. Echinoderms and mollusks dominate the megafauna near the edge of the shelf.

General foraminiferal trends are: foraminiferal abundance increases offshore; live specimens are most abundant in the central shelf area; living species are most abundant in the central shelf area and in the bathyal zone; higher live/dead ratios occur on the central and outer shelf in areas of slow deposition; arenaceous types dominate dead populations on the central shelf; and live hyaline types are more than 8 times as abundant as live arenaceous forms in most areas.

Inshore foraminiferal groups are characterized by species of *Rotorbinella, Discorbis,* and *Elphidium.* Open shelf biofacies are characterized by *Buliminella elegantissima, Eggerella advena, Bulimina marginata denudata,* and *Trochammina pacifica.* Species of *Nonionella,* normally abundant, are relatively rare, possibly because of ocean pollution. A *Bolivina acuminata* group of species is characteristic of the shelf edge and the upper basin slope. A deeper water *Bolivina argentea* basin facies appears at about 400 meters and is dominant on the floor of Santa Monica basin.

BECK, R. STANLEY, Consultant

BIOSTRATIGRAPHIC HIGHLIGHTS OF SOME DEEP WELLS FROM CENTRAL-SOUTHERN SAN JOAQUIN VALLEY, CALIFORNIA

The wells to be discussed are the Kings County Von Glahn No. 1, Sec. 4, T. 23 N., R. 22 E.; Harry H. Magee Amalgamated Happold No. 2, Sec. 15, T. 25 S., R. 24 E.; Continental KCL A-2, Sec. 8, T. 27 S., R. 24 E.; Western Gulf KCL B-45, Sec. 22, T. 29 S., R. 27 E.; Humble KCL D-2, Sec. 15, T. 30 S., R. 27 E.; Ohio KCL A-72-4, Sec. 4, T. 32 S., R. 26 E.; and Humble KCL B-11, Sec. 35, T. 11 N., R. 21 W.

The above wells include more than 21,000 ft. of Pleistocene to Upper Cretaceous (?) sediments that were deposited in non-marine to deep-water marine environments. Thickening and thinning of beds, as well as changes in the biofacies and lithofacies, take place quite rapidly between well locations. In the Ohio KCL A-72-4 and many adjacent wells, "deep water pseudo-Saucesian" foraminiferal species often recur within middle and late lower Miocene intervals. The Humble KCL B-11 and many other wells on or near the major fault systems contain good examples of repetition of faunas resulting from overturned beds and faulting.

BEDFORD, J. W., Texaco Inc.

GREAT ALASKAN EARTHQUAKE AND ITS AFTER EFFECTS

One of the greatest earthquakes ever recorded struck Alaska on March 27, 1964, causing an estimated 750 million dollars in property damage and the loss of 115 lives.

The earthquake epicenter was located at the head of Prince William Sound, 75 miles east of Anchorage. Approximately 12,000 aftershocks had been recorded by October, 1964. Aftershock epicenters extend in a belt 50 to 140 miles wide between Prince William Sound and Kodiak Island, a distance of over 500 miles. Uplifts of as much as 50 feet and horizontal shifting of 10 to 20 feet have been reported along the southeastern portion