

# THE AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

## Distinguished Lecture Tour

### GROSS TRANSPORT OF SUSPENDED SEDIMENTS OVER CONTINENTAL SHELVES AS ANALYZED FROM GEMINI AND APOLLO SPACE PHOTOGRAPHY

by

Robert E. Stevenson

#### ABSTRACT

From the manned flights conducted by the National Aeronautics and Space Administration of the United States, some 3,500 color photographs were taken which show features of geologic, oceanographic, or meteorologic interest.

The distribution of suspended sediments is apparent over areas of 2,000 to 8,000 square kilometers, in amazing detail, in photographs of waters off major river deltas; such as those of the Orinoco, Mississippi, and Irrawaddy rivers, where great volumes are introduced into the sea from the streams.

Photographs of coastal waters in the Gulf of Mexico, Persian Gulf, and southwest Africa show suspended sediments distributed by small eddies and rip currents to distances of 30 kilometers from shore.

Where tidal exchange and/or strong offshore winds result in non-periodic flows from estuaries and lagoons, suspended sediments are visible to distances of 150 kilometers from the shore. As along the Texas coast in the Gulf of Mexico, the distribution of these sediments portray the turbulent water motion in eddy configurations having diameters of 30 to 90 kilometers.

These impressive space photographs indicate the photo scales of 1:1,000,000 to 1:4,000,000, have a uniquely unmatched utility in surveillance of (1) major nearshore sedimentation, (2) patterns of coastal currents, and (3) the magnitude of deviations from normal conditions.