

by Richard Gibson and  
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## Southeast Asia Gravity and Magnetics Interpretation: A Tour of Significant Basins and Regions

### Abstract

Recent high-quality, satellite-derived, free-air gravity data and magnetic data compiled by the Geologic Survey of Japan are interpreted to provide a regional plate tectonic framework for planning hydrocarbon exploration including regional detail of rifts, depocenters, carbonate buildups and platforms, and major structures and accommodation zones; distribution of volcanics and depth to magnetic basement; as well as definition of oceanic fracture zones and their interaction with prospective continental margin areas. The study area is 100° to 120° East by 3° to 23° North, or about the same size as the entire Gulf of Mexico or North Sea.

Basins interpreted include Beibu Wan, Hoang Sa, Malay, Mekong, Nha Trang, Outer, Pearl River, Sabah, Sokang, Song Hong, Tarakan, Thai, West Natuna, and Yang Ghe. Other important regions interpreted include: Baram Delta, Luconia Platform, McClesfield Bank, Paracel Islands, Reed Bank, and Spratly Islands area.

In addition to interpretation maps, nine mega-regional modeled cross sections are used to support the interpretation. The presentation is interactive utilizing ArcView™ GIS software.

### Biographical Sketches

Dick Gibson was trained as a geologist and mineralogist at Indiana University and the University of California at Davis. After four years of mineralogical analysis of kidney stones, he started his oil industry career in 1975 with Aero Service Corporation in Houston. At Gulf Oil's Technical Services Center he performed geological interpretations of gravity, magnetic, and seismic data from around the world and helped teach Gulf's in-house gravity and magnetics school. He was director of gravity and magnetics for Everest Geotech, Inc., (Houston and Denver) from 1984 to 1989, and since 1989 he has had his own

consulting firm, Gibson Consulting, in Golden, Colorado. His specialty is tectonic interpretations of continent-scale gravity and magnetic data sets, and for the past year and a half he has focused on interpreting satellite-derived gravity for hydrocarbon exploration.

Prior to founding Bird Geophysical, Dale Bird established an affiliate office in Houston for Aerodat Inc., an international airborne geophysical survey company. His 16 year career also includes: chief geophysicist for World Geoscience Inc. (Americas), geophysicist with Marathon Oil Company, Digicon Inc., and Aero Service Division of Western Atlas International Inc. Dale served in the U.S. Army, 1st Military Intelligence Battalion, as an image interpreter specializing in interpretation of various imagery formats. He is the current chairman of the SEG Gravity and Magnetics Committee. Dale earned B.S. and M.S. degrees in geophysics, and is currently a Ph.D. candidate (geophysics) at the University of Houston.