**Tuesday, January 9, 2007**
Anadarko Tower
The Woodlands, TX
10:00 AM to 11:00 AM

**No Charge but Attendance Limited to 50 HGS Members**

**For Further Details Contact**
**Aaron J. Adams, E&P Technology Center, Anadarko Petroleum Corp., 832.636.1669 or at aaron.adams@anadarko.com**

## 2006-07 AAPG Distinguished Lecture

by ***Steven Bachtel***
*ConocoPhillips*
*Houston, TX*

**Funded by the AAPG Foundation**
**Sponsored by Anadarko**

# Seismic Stratigraphy of the Miocene-Pliocene Segitiga Platform, East Natuna Sea Indonesia: The Origin, Growth and Demise of an Isolated Carbonate Platform

Seismic stratigraphy and seismic facies analysis provide a useful methodology for the genetic understanding of carbonate platform systems during exploration, initial assessment, and early field development (e.g. sparse well data). A high-resolution 2D seismic survey covering 7500 square kilometers allows documentation of the evolution of a Miocene-Pliocene carbonate platform in the East Natuna Sea, Indonesia. The Segitiga Platform (1400 sq. km.) contains Terumbu Formation carbonates up to 1800 meters thick that were deposited in platform interior, reef and shoal margin, and slope to basin environments of an isolated carbonate platform.

The Segitiga Platform was subdivided into twelve seismic sequences that demonstrate a history of: 1) initial isolation, 2) progradation and coalescence, 3) backstepping and shrinkage, and 4) terminal drowning. Seismic facies maps indicate that the Segitiga Platform originated as three smaller platforms on extensional fault block highs. Deep intraplatform seaways separated these platforms. Progradation of shallow-water carbonates filled the seaways during a phase of coalescence and the three platforms were amalgamated to form a composite platform (1400 sq. km; middle-upper Miocene). A rapid relative rise in sea level at the end of Miocene time caused a major backstepping of the carbonate margins (and a concomitant drowning of the adjacent Natuna Field carbonates to the east) resulting in a platform of reduced size (600 sq. km) during the lower Pliocene. Rapid subsidence, combined with a eustatic rise at the end of the early Pliocene caused terminal drowning of the Segitiga Platform. The platform was buried by younger siliciclastics of the Muda Formation.

*Eustatic sea-level change controlled the timing of sequence boundary formation, but structural movements modified internal sequence character and facies distribution.*

Eustatic sea-level change controlled the timing of sequence boundary formation, but structural movements modified internal sequence character and facies distribution. Faulting created topography that acted as templates for the initiation of carbonate platform deposition, as well as providing pedestals for the localization of backstepped platforms. Cessation of faulting may have allowed progradation to occur due to a reduction in the rate of increasing accommodation. Regional subsidence may have controlled the location and extent of platform backstepping. Geographic variability in sequence stacking of coeval platform margins is observed over relatively short distances. Progradation is most strongly developed on the leeward side of the platform, but increased accommodation due to rapid local subsidence or changing oceanographic currents also influenced the direction and magnitude of progradation. ■

### Biographical Sketch

**Steve Bachtel** received a PhD at Texas A&M University in 1995. He has worked for ConocoPhillips since 2005, for ExxonMobil, Phillips and AGAT-Geochem Consultants in Denver. His interests include integration of seismic interpretation, seismic and image attributes, well logs, petrography and core to establish more disciplined stratigraphic frameworks and a better understanding of the spatial distribution of reservoir properties that fill those frameworks. He has published in AAPG, SEPM and JSR.