

# Siliclastic Sequence Stratigraphy: Application to Exploration and Production

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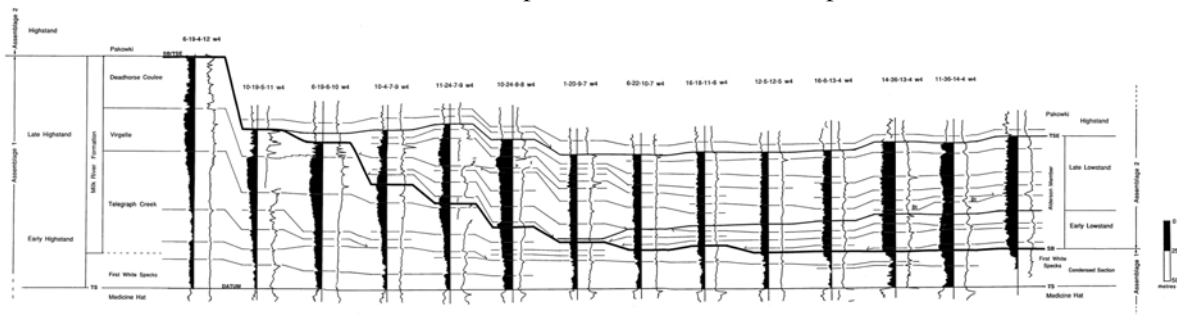
## Course Requirements:

This course is designed for exploration/production geologists and geological managers or reservoir engineers. The course will give you an overview of the history of stratigraphy from traditional lithostratigraphy and biostratigraphy through seismic stratigraphy, sequence stratigraphy and allostratigraphy. The course provides both a theoretical understanding of how sequences and systems tracts form as well as a practical methodology for undertaking stratigraphic systems using outcrop, core, well log, and seismic data. The course will be a combination of lectures and practical exercises.

## Recommended Reference Books:

Posamentier, H.W. and Allen, G. P. 1999, Siliclastic Sequence Stratigraphy - Concepts and Applications, SEPM Concepts in Sedimentology and Paleontology, No. 7, 216p.

Van Wagoner, J. C., Mitchum, R. M., Campion, K. M., and Rahmanian, V. D., 1990, Siliclastic sequence stratigraphy in well logs, cores and outcrops: concepts for high-resolution correlation of time and facies: AAPG Methods in Exploration Series, No. 7, 55p.



The course will emphasize:

- Graphic description and interpretation of facies successions from cores and outcrops.
- Correlation techniques in siliclastic outcrop and well log datasets.
- Overview of seismic interpretation techniques and how they are applied to outcrop and well log data sets.
- Construction of time-stratigraphic charts (Wheeler diagrams)
- Determination of facies and parasequence stacking patterns and systems tracts and sequence identification in 1D well logs and in cross sections.
- Implication of revised sequence stratigraphic correlations for discovering bypassed pay in known reservoirs or step-out exploration opportunities.
- How sequence stratigraphy can be used to highlight reservoir architecture and reservoir quality and for flow-unit definition.

Examples will be comprehensive and include seismic data, well logs, outcrops and cores from petroleum basins around the world. Students are encouraged to bring examples of their own work or data sets as discussion points.

## Major Topics:

1. Introduction: Types of Stratigraphy
2. Base level concepts (accommodation and accumulation)
3. Review of facies concepts
4. Contacts
5. History of Sequence Stratigraphy
6. Seismic Stratigraphy
7. Sequence Stratigraphy Concepts
8. Allostratigraphy concepts
9. Sequence Stratigraphic Methodology
10. Ravinement and Forced Regressions
11. Shelf sandstones
12. Fluvial Sequence Stratigraphy and Incised valleys
13. Deep Water Sequence Stratigraphy



### **Instructor Biography:**

Janok P. Bhattacharya is the Robert E. Sheriff Professor of Sequence Stratigraphy at the University of Houston. His research interests include fluvial and deltaic sequence stratigraphy and facies architecture, and the local control of structure on stratigraphy. He received his B.Sc. in 1981 from Memorial University of Newfoundland, and Ph.D. in 1989 from McMaster University, Hamilton, Ontario, both in Canada. Bhattacharya worked for ARCO and then the Bureau of Economic Geology at Austin before becoming a professor at the University of Texas at Dallas in 1998. He joined UH in the Fall of 2005. He has worked on a number of major fluviodeltaic reservoirs, including the Supergiant Prudhoe Bay field in Alaska, for which he was awarded the ARCO Exploration Research and Technical Services Award of Excellence for Major Impact on Operations in 1993. He has won best speaker awards for talks on his deltaic outcrop analog work, presented to the AAPG, CSPG and Houston

Geological Society and was the technical program, coordinator for the 2004 Annual AAPG conference in Dallas. He was a 2005-2006 AAPG distinguished Lecturer, and in 2005 was awarded an AAPG SW Section Distinguished educator award. He has authored or co-authored over 40 technical papers and over 100 abstracts