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**A Simplified Guide For Sequence
Stratigraphy: Nomenclature,
Definitions and Method**

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ABSTRACT:

All attempts to "codify" Sequence Stratigraphy have failed, from the first effort of the North American Commission on Stratigraphic Nomenclature in the 80's to the more recent endeavor by the International Subcommittee on Stratigraphic Classification in Europe. Reasons for not including Sequence Stratigraphy in the stratigraphic code vary. Complaints include: cumbersome nomenclature; conflicting or obscure causing mechanisms; disagreement on basic definitions, primarily in the basic approach to define surfaces and systems tracts; or simply that Sequence Stratigraphy is a "young" science that might need more time to mature. It is interesting to note that Biostratigraphy-just as old as Sequence Stratigraphy-has a very clear set of rules and terminology, or "code," followed by all biostratigraphers. In fact, Biostratigraphy has the same set of challenges as Sequence Stratigraphy: it has a very cumbersome nomenclature classification of fossils; driving mechanisms for rate of evolution of different taxa is subject of debate; there is strong disagreement as how to classify different species and genera; and it is a relatively young science. Perhaps success in the paleontological community is linked to their approach for defining a code. Biostratigraphy is codified as a method, not a science, based on simple criteria that can be directly observed from available data. Implications for interpretation, in terms of causal mechanisms, follow after initial interpretation, and are not part of the code. The question is then: Why do Sequence Stratigraphers have such difficulty agreeing on basic rules for identifying surfaces and systems tracts based on direct observational criteria? We suggest that the source of this problem lies not mainly in the original definitions, but in the terminology proposed originally for surfaces and systems tracts. Highstand, Transgressive, and Lowstand are inherently ambiguous terms. Two of them (Highstand and Lowstand) imply sea-level positions and one of them (Transgressive) implies a lateral movement of shoreline. We pose that this mixing of terminology is at the heart of the problem, where it appears to be necessary to integrate interpretation of causal mechanisms with direct observations from data in order to "classify" a surface or a systems tract. This talk emphasizes the original intent of Sequence Stratigraphy: a method to interpret geologic data. As such, a Sequence Stratigraphic code should be

based on criteria directly observable from outcrop, core, well-log, and seismic data-independent of causal mechanisms, duration, or magnitude of events. Similar to the biostratigraphers' code, this proposed approach leaves the interpretation of causal mechanisms as a step after the definition of surfaces and systems tracts. In this presentation, rather than proposing a code per se, we offer guidelines for interpretation and updated definitions of classical terms, which are slightly modified from the original definitions. Our modifications are intended to emphasize observational criteria, as well as clarify communication of terminology through the use of a set of translation terms taken from literature. We will also present the application of our proposed method to different data sets in order to show the step by step practical application of this method.

Speaker Biography:

Dr. Vitor Abreu is an internationally recognized consultant, considered one of the world leaders in Sequence Stratigraphy and deep water reservoirs, proposing new deep water models with strong impact in reservoir characterization. Vitor has 28 years of experience in the oil industry in petroleum exploration, with a proven record in evaluating, risking and/or drilling in 22 countries and 31 sedimentary basins in the 6 continents. His previous experience includes working for Petrobras, Unocal, and ExxonMobil.

As an educator, Vitor is an Adjunct Professor at Rice University, teaching the graduate course on Sequence Stratigraphy since Peter Vail's retirement. More than 1000 students from around the globe have taken his short course on "Sequence Stratigraphy for Applied to Exploration" since the year of 2000. This course has been taught at the AAPG annual meetings, international meetings, universities, and geological societies around the world continuously since it was first offered. He is also one of the industry leaders on Sequence Stratigraphy and is the chief editor of SEPM's book "Sequence Stratigraphy of Siliciclastic Systems", which has sold almost 4000 copies since publication in 2010.

Vitor is the President of the Society of Sedimentary Geology (SEPM) and held the position of Research Councilor also for SEPM (2004-2006). He was a Convener for the International Geological Congress held in Japan (2006) and was in the Board of Directors of STEPPE, a NSF-supported consortium (2013-2014). He was the recipient of the AAPG's Jules Braunstein Memorial Award and was appointed AAPG's inaugural International Distinguished Instructor in 2006.

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