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Roger Slatt, Reservoir Characterization Day 1 (Video A) Roger Slatt, Reservoir Characterization Day 1 (Video E) Reservoir Characterization, Dr. Moustafa Oraby 02/05

SDC SRC - Conditioning Seismic Data for Advanced Reservoir Characterization Studies | Session 1 Roger Slatt, Reservoir Characterization Day 1 (Video F) 3-Source of data for geological modeling and reservoir characterization ~~Source Rocks \u0026 HC Generation - Petroleum Exploration: A Field Example~~ ~~4-General Procedure for geologic modeling and reservoir characterization~~

Reservoir Group - Reservoir Characterization *Stratigraphic Hydrocarbon Traps Petroleum Geology: Reservoir rock properties \u0026 Trapping Petroleum Geology: Migration from source rock to reservoir*

Integrated Field Development Planning: A Pore-to-Process Perspective

Reservoir - Rock Properties*Well Log Interpretation Review Ab Conventional \u0026 Unconventional Reservoirs; What Is In \u0026 Out in Pressure \u0026 Rate Transient Analysis*

Reservoir Rock Properties and Basic Log Interpretation, Dr. Moustafa Oraby

What is GEOLOGIC MODELLING? What does GEOLOGIC MODELLING mean? GEOLOGIC MODELLING meaning

37) Depositional EnvironmentsApplied Petroleum Reservoir Engineering - Chapter 1 **reservoir simulation p** *Janet Watson 2018: Machine Learning Assisted Petroleum Geoscience High Frequency/High Fidelity Reservoir Characterization Reveal Potential in Complex Carbonate Formations with Geology-guided Rock Physics Modeling* Geology and Exploration Trends in the Gulf of Mexico 'Superbasin' US and Mexico The Importance of Natural Fracture Type in Controlling Reservoir Permeability **Visual Cuttings \u0026 Core Description to Characterize Reservoir \u0026 Non Reservoir Rock** *Professor Mark Bentley, Heriot-Watt University (Reservoir model design)* Webinar: Blueback ODiSI - A revolutionary new approach to seismic reservoir characterization Seismic Interpretation Below Tuning with Multi-Attribute Analysis *Stratigraphic Reservoir Characterization For Petroleum*
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Stratigraphic Reservoir Characterization for Petroleum Geologists, Geophysicists, and Engineers focuses on stratigraphic aspects of clastic reservoir characterization, with emphasis on understanding the primary control that depositional processes and systems exert on reservoir performance, and the extent to which stratigraphic features can be predicted away from the wellbore. The book only deals with structural aspects in a peripheral manner because this topic is very comprehensive and ...

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Stratigraphic Reservoir Characterization for Petroleum ...
1. Basic principles and applications of reservoir characterization 2. Basic sedimentary rock properties 3. Geologic time and basic stratigraphy 4. Tools and techniques for reservoir 5. Sequence stratigraphy for reservoir characterization 6. Geologic controls on reservoir quality 7. Fluvial deposits and reservoirs 8. Eolian (windblown) deposits ...

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discipline grew out of the recognition that more oil and gas could be extracted from res...

Stratigraphic Reservoir Characterization for Petroleum ...
Stratigraphic Reservoir Characterization for Petroleum Geologists, Geophysicists, and Engineers: Origin, Recognition, Initiation, and Reservoir Quality. Reservoir characterization as a discipline grew out of the recognition that more oil and gas could be extracted from reservoirs if the geology of the reservoir was understood.

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Stratigraphic reservoir characterization for petroleum geologists, geophysicists, and engineers. Responsibility. Roger M. Slatt. Edition. 1st ed. Imprint. Amsterdam ; Boston : Elsevier, 2006. Physical description.

Stratigraphic reservoir characterization for petroleum ...
Reservoir characterization is an important aspect in petroleum geology and engineering. It deals with construction of realistic image of petrophysical properties to be used to predict reservoir performance [1]. The present study aims to testify the reservoir potential of one of the Early Jurassic stratigraphic units, which is Butmah Formation.

Reservoir Characterization of the Early Jurassic Butmah ...

Reservoir Characterization In reservoir characterization, wireline (e.g., gamma-ray) log motifs are the basic subsurface data that are routinely used by the petroleum industry. Interpreting a process-specific depositional facies (e.g., slide vs. debrite) from a log motif, without corresponding sediment core, is impossible.

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5. Simplified geologic age relationships of the principal oil producing stratigraphic units of Texas • 15 6. (A) Temporal distribution of in-place Texas oil and (B) cumulative oil production (as of 1981) by reservoir age • • 17 7. Distribution of major oil in terrigenous clastic and allochemical reservoirs. • 18 8.

GEOLOGICAL CHARACTERIZATION OF
T1 - Stratigraphy and reservoir characterization of the Silurian Racine Formation in Harristown oil field, central Illinois. AU - Askari, Zohreh. AU - Lasemi, Yaghoob. PY - 2018. Y1 - 2018. N2 - The Middle Silurian Racine Formation is the major oil-producing unit in the southeastern flank of the Sangamon Arch, northwest of the Illinois Basin.

Stratigraphy and reservoir characterization of the ...
Characterize marine stratigraphy and build relationships with depositional environments using outcrop, core, and other oil and gas industry data; Use lithofacies and stratigraphic architecture to understand variations in deep-water reservoir properties pertaining to petroleum reservoir presence, quality, and seal presence

IOSC- Integrated Methods for Deep-Water Reservoir ...

Various stimulation treatments must be designed to optimize production for different stratigraphic zones or areas of the field. Multiple completions and/or selective injection equipment are required. Reservoir characterization and management problems. Correlations that subdivide the reservoir into meaningful producing zones must be consistent.

Stratigraphically complex fields - AAPG Wiki

Seismic Driven Multistage Reservoir Characterization Process of Thinly Sand-Shale Interbedded Deltaic Reservoirs — A Case Study from the Tapti Daman Sector of Mumbai Offshore Basin, India ... Coupled Stratigraphic, Diagenetic and Basin Modelling for an Ultra-Deep Petroleum System Analysis: A Case Study from the Tarim Basin, China ...

Reservoir characterization as a discipline grew out of the recognition that more oil and gas could be extracted from reservoirs if the geology of the reservoir was understood. Prior to that awakening, reservoir development and production were the realm of the petroleum engineer. In fact, geologists of that time would have felt slighted if asked by corporate management to move from an exciting exploration assignment to a more mundane assignment working with an engineer to improve a reservoir's performance. Slowly, reservoir characterization came into its own as a quantitative, multidisciplinary endeavor requiring a vast array of skills and knowledge sets. Perhaps the biggest attractor to becoming a reservoir geologist was the advent of fast computing, followed by visualization programs and theaters, all of which allow young geoscientists to practice their computing skills in a highly technical work environment. Also, the discipline grew in parallel with the evolution of data integration and the advent of asset teams in the petroleum industry. Finally, reservoir characterization flourished with the quantum improvements that have occurred in geophysical acquisition and processing techniques and that allow geophysicists to image internal reservoir complexities. Practical resource describing different types of sandstone and shale reservoirs Case histories of reservoir studies for easy comparison Applications of standard, new, and emerging technologies

This chapter has summarized the concepts, techniques, and definitions of sequence stratigraphy. As in most subdivisions of geology, sequence stratigraphers have developed their own set of definitions and terminology, which have been outlined here for use in subsequent chapters. It is proposed that sequence stratigraphy form the basis for reservoir characterization, as will be expanded upon in subsequent chapters.

There are many tools and techniques for characterizing oil and gas reservoirs. Seismic-reflection techniques include conventional 2D and 3D seismic, 4D time-lapse seismic, multicomponent seismic, crosswell seismic, seismic inversion, and seismic attribute analysis, all designed to enhance stratigraphy/structure detection, resolution, and characterization. These techniques are constantly being improved. Drilling and coring a well provides the “ground truth” for seismic interpretation. Rock formations are directly sampled by cuttings and by core and indirectly characterized with a variety of conventional and specialized well logs. To maximize characterization and optimize production, many of these tools as possible should be employed. It is often less expensive to utilize a wide variety of tools that directly image or measure reservoir properties at different scales than to drill one or two dry holes.

The focus of this chapter has been on eolian reservoirs, with only a secondary emphasis on description of outcrops. That is because the unique, fine-scale stratification characteristics of eolian deposits that affect their reservoir performance have been very well documented from the reservoirs themselves. Because of the likelihood of stratigraphic compartmentalization and permeability anisotropy resulting from bounding surfaces, it is very important that eolian reservoirs be characterized in detail. In addition to the effects of bounding surfaces, variations in cementation within laminae of different grain sizes result in small-scale variations in porosity and permeability, which are difficult and expensive to measure and document. This fact further emphasizes the importance of detailed reservoir characterization.

Certain parts of this chapter have been taken directly from the publication Important geological properties of unconventional resource shales, by Roger M. Slatt, published in the fourth-quarter issue of the Central European Journal of Geosciences (2011). The journal’s permission to reproduce those parts of that paper here is gratefully acknowledged.

This chapter has summarized the important characteristics of deepwater deposits and reservoirs. These reservoirs are quite complex and variable. An understanding of the different architectural elements and their interrelations is critical to hydrocarbon recovery, because the elements exhibit different external geometries, sizes, spatial orientations, and internal sedimentary and stratigraphic features. Because of these differences, the volume of hydrocarbons and the anticipated recovery efficiency will vary by architectural element (). There are many new and awaiting opportunities for deepwater reservoirs both onshore and offshore. The US Gulf of Mexico and many other parts of the world are hot spots or emerging areas for exploration and development of vast resources of oil and gas (Fig. 11.93).

In this chapter, the principles of reservoir modeling, workflows and their applications have been summarized. Reservoir modeling is a multi-disciplinary process that requires cooperation from geologists, geophysicists, reservoir engineers, petrophysics and financial individuals, working in a team setting. The best model is one that provides quantitative properties of the reservoir, though this is often difficult to achieve. There are three broad steps in the modeling process. The team needs to first evaluate the data quality, plan the proper modeling workflow, and understand the range of uncertainties of the reservoir. The second step is data preparation and interpretation, which can be a long, tedious, but essential process, which may include multiple iterations of quality control, interpretation, calibration and tests. The third step is determining whether to build a deterministic (single, data-based model) or stochastic (multiple geostatistical iterations) model. The modeling approach may be decided by the quality and quantity of the data. There is no single rule of thumb because no two reservoirs are identical. Object-based stochastic modeling is the most widely used modeling method today. The modeling results need to be constrained and refined by both geologic and mathematical validation. Variogram analysis is very important in quality control of object-based stochastic modeling. Outcrops are excellent sources of continuous data which can be incorporated into subsurface reservoir modeling either by 1) building an outcrop “reservoir” model, or 2) identifying and developing outcrop analogs of subsurface reservoirs. Significant upscaling of a reservoir model for flow simulation may well result in an erroneous history match because the upscaling process often deletes lateral and vertical heterogeneities which may control or affect reservoir performance, particularly in a deterministic model. Reservoir uncertainties are easier to manipulate by object-based stochastic models. Choosing the best realization approach for the reservoir model is the key to predicting reservoir performance in the management of reservoirs.

Shallow marine environments, from the shoreline to the shelf edge, are complex and result in complex deposits. In turn, complex deposits translate into complex reservoirs. To maximize reservoir performance, it is imperative that we understand the type of shallow marine deposit that makes up the reservoir. That is not an easy task, as is exemplified by the various interpretations that have been assigned to linear sandstones of the U.S. Cretaceous Western Interior Seaway. These sandstones, in both outcrop and subsurface reservoirs, have been interpreted to be offshore shelf bars or ridges, shoreface bodies, and incised valley fill. Interpreting the type of deposit is not merely an academic exercise, it is essential because each of these different types of sandstone bodies is characterized by different geometries and degrees of compartmentalization. There are numerous examples of shoreface deposits that are truncated by younger incised valley fill. Subtle variations in gamma-ray log response can be used to identify such strata. Barrier-island deposits provide a particularly challenging reservoir characterization problem. Because of the variety of sedimentary processes that can influence barrier-island formation, several different sandstone and shale geometries and trends can occur. That variation in geometries can lead to the potential for a high degree of compartmentalization that is difficult to predict. Again, depositional-geometry prediction and well placement are facilitated by an understanding of the nature of the deposit and how it was formed.

Globally, deltas often contain major oil and gas reservoirs. The geometry, size, and internal architecture of deltas are functions of many variables related to the delta's mode of formation. A tripartite classification of deltas, into river-, wave-, and tide-dominated deltas, has been a standard for many years. However, even within each of these delta types, the distribution of properties can vary considerably depending on the delta’s depositional history and the relative influence of rivers, waves, and tides. With regard to reservoir performance and optimization, perhaps the most significant difference in delta properties is in orientation and continuity of sand (reservoir) and shale (barrier) trends. Reservoir quality also varies according to the facies within the delta. To maximize hydrocarbon production, it is not sufficient to merely classify the reservoir as a delta. A complete understanding of the characteristics and variations of an individual delta's reservoir is required for proper well placement and reservoir management.