patch reefs only stood 1 to 3 m (3 to 10 ft) above the sea floor, it is obvious from the external morphology of individual Archaeocyathids and the number of overturned and restored colonies that the patch reefs encountered higher energy conditions as they grew. Thus, these Archaeocyathid patch reefs apparently created many small, discontinuous obstructions to currents and waves.

Two distinctly different faunas associated with the environments around these reef complexes show a similar change in dominance diversity (d). The faunal assemblages on the flanks of each complex illustrate a general decrease in the abundance of the dominant species or a more equitable distribution of individuals per species with distance from the complex. However, the composition of each faunal association remains consistent with distance from the complex. The gradual lowering of dominance diversity with distance from the complex could be related to a subtle but gradual change in the marine environment.

In each assemblage, the high degree of dominance close to the reef appears to approach a geometric distribution of the individuals per species. Faunal assemblages in which the distribution of the individuals per species approaches a geometric distribution are indicative of physically disturbed habitats. The decrease in dominance farther from the complex suggests that these areas could have been under less physical stress.

Currents diverted by a small patch reef would flow over and around this obstruction, thereby creating a zone of higher physical energy around the reef. In each of the lower Forteau reefs examined, the interreef faunal distribution could be related to a zone of higher physical disturbance directly around the reef. Thus, changes in the local physical-sedimentological environment produced by the reefs appear to have affected the ecological structure of the interreef faunas.

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Vertically Accreted Foreshore to Shoreface Deposits of Sego Sandstone (Campanian), Northwest Colorado

Exposures of the Sego Sandstone, on the northern flank of Rangely dome, Colorado, represent a thick (50 m [165 ft]) sequence of shoreline sandstone. The Sego Sandstone generally represents a progradational sequence. However, the interplay between sediment supply and subsidence resulted in stabilization of shoreline position. Deltaic distributaries were not observed, suggesting interdeltaic deposition.

The initial progradational phase within this sandstone complex is represented by three facies. (1) Basal facies composed of bioturbated shale with occasional silt stringers. (2) Medial facies, averaging 5 m (16 ft) in thickness, grading upward from the underlying shales, and composed entirely of ripple-stratified fine sandstone. Starved ripples at the base of this sequence grade vertically into flaser and amalgamated ripples. Channels filled with clay and ripple-stratified sand oriented south-easterly are present. (3) Upper facies is composed of fine-grained sandstone exhibiting basal hummocky cross-bedding that grades vertically into small-scale troughs and planer stratification. This facies is capped by a thin (35 cm [14 in.]) coal. Maximum observed thickness for this facies is 7 m (23 ft), with thinning toward the northwest.

Facies 1 represents the marine shale deposits of the Buck Tongue. Facies 2 is an ebb delta system believed to have functioned concurrently with the prograding shoreface (facies 3).

Stabilized shoreline conditions are characterized by four facies. (1) The basal unit is composed of fine to medium-grained sandstone. Trough and tabular cross-bedding is abundant, as is ripple stratification. Individual beds are 10 to 50 cm (4 to 20 in.) thick and the unit thickness is 10 to 20 m (33 to 66 ft). No apparent vertical trends with respect to either grain size or sequence of sedimentary structures were observed. (2) The second facies is fine grained, predominantly ripple stratified with some tabular and low angle bimodal cross-beds. Sand-filled channels with *Ophiomorpha* are present. This facies is 9 m (29.5 ft) thick and onlaps with a portion of facies 1. (3) The third unit is fine to medium grained, and as with facies 1, contains abundant trough and tabular cross-bedding as well as abundant ripple stratification. Paleocurrent data suggests a northwesterly transport direction for facies 3 as opposed to a southwesterly direction for facies 1. Bedding is between 10 to 50 cm (4 to 20 in.) thick with unit thickness of from 0 to 12 m (0 to 39 ft). This unit thins northwestward. (4) The upper unit thickens northwestward and is composed of bioturbated shales, humates, and very fine-grained sandstone.

Facies 2 represents a sand tidal flat situated behind the coastal barrier (facies 1). The lack of well-developed trends either in grain size or sedimentary structures within facies 1 indicates that the bar formed from the amalgamation of diverse environments. Overlying both the bar and tidal flat facies is the spit (facies 3) and lagoonal muds and washovers (facies 4). This shoreline sequence is overlain by fluvial deposits of the Mesaverde Group.

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Detailed Reservoir Analysis using EPT-Cyberlook and Dipmeter Computations

In recent years, a tremendous amount of work by oil companies has been done to evaluate tertiary flood programs in heavy oil reservoirs. One of the keys to understanding how a flood will behave, and therefore an input to the modeling, is a basic knowledge of the depositional environment and reservoir geometry. This often requires the analysis of a large amount of information. The core analysis alone on a multiple well project can be extremely time consuming if it is to be done with any significant detail.

This paper outlines the basis for a technique which allows a fairly detailed analysis of the reservoir potential and depositional environment. Using field generated Cyberlook logs and the dipmeter programs of Cluster and Geodip, a fairly rapid interpretation can be made which will confirm the depositional environment, the reservoir potential, and the orientation of any permeability barriers within the reservoir.

Several examples are presented where the Electromagnetic Propagation log is used in the Cyberlook to identify the mobile oil potential of the reservoir. This computation is then compared to Cluster and Geodip plots and, where anomalies occur, either changes in Rw or oil viscosity are implied. Reservoir geometry is then estimated from knowledge of the depositional environment and the dipmeter computations.

With these tools at hand, it is now possible to predict not only which hydrocarbons will move, but the general direction of movement during initial production or flooding of the reservoir.

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Plate Tectonics and Offshore Boundary Delimitation: Tunisia-Libya Case at the International Court of Justice

Advances in the technology for exploiting resources of the oceans, particularly recovery of hydrocarbons and minerals in deep water, is benefiting a growing number of nations. At the