# **GEOLOGY SERVICES**



All Biostrat JV services are based on core geological principles and sequence stratigraphy. Biostrat JV aims to always represent geological data in its truest form. Geological competence is a significant aspect of Biostrat JV's services and include:

- Sequence stratigraphy
- Sedimentology, core analysis & petrography
- Surface geology services
- Subsurface Mapping
- Petroleum geology & wellsite services

## SEDIMENTOLOGY, CORE ANALYSIS & PETROGRAPHY



The following rock properties noted in clastic and carbonate sediment logging aid in understanding sedimentary basins, depositional modes and provenance:

- Grain size, sorting and shape analysis provide details of the energy of the depositional system.
- **Bioturbation** intensity establishes primary environmental stresses and impacts on reservoir quality.
- Sand: Mud ratio distinguishes between lithologies and identifies turbidite facies.
- Mineral identification can provide details of the chemical environment during deposition and is useful in provenance studies.
- Pore analysis using point counts provide information of rock permeability and porosity to determine reservoir, seal and trap quality.
- Oil Spectrometry for a qualitative characterization of crude oil using UV light is a simple but effective method for rapid results.
- **Diagenetic studies** explain the evolution of fluid-rock intercations and associated burial models.

## **SEQUENCE STRATIGRAPHY**



Biostrat JV uses sequence stratigraphy to:

- Interpret depositional origin
- Predict heterogeneity in sediment accumulations
- Define the stratigraphic extent or continuity of associated lithofacies.
- Identify erosional surfaces & changing geometries
- Locate onlap, toplap and downlap surfaces, and maximum flooding surfaces (MFS)
- Recognize high stand, low stand, falling stage, transgressive and regressive systems tracts (HST, TST, FSST, SMW & LST) due to changes in basin sea level and subsidence over time.

The Biostrat JV advantage is our in-house capability to incorporate high resolution biostratigraphy with seismic, petrophysical logs and lithofacies data. Biostrat JV provides a far superior geological understanding of the sedimentary basin than that provided by a less integrated approach.



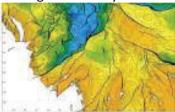


# **GEOLOGY SERVICES**

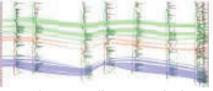
#### SUBSURFACE MAPPING

Biostrat JV assists in subsurface mapping and have the advantage to incorporate all data. This includes high resolution biostratigraphy with seismic, petrophysical logs and lithofacies data. With this data we can produce a wide range of subsurface maps such as:

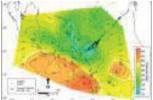
 Structure contour maps- display the surface of geological horizons using drill hole data to depict features such as normal and reverse faulting and identify structural traps



 Cross sections – an approximate model of the real distribution of subsurface rocks to better understand the tri-dimensional structure of the rock.



 Isopach maps- Illustrates thickness variations of stratigraphic horizons, perpendicular to bedding surfaces, to determine the time of faulting and folding or time of traps formation in regional studies.



- Net Sand maps- contours the ratio of gross pay to net pay within the reservoir.
- Net oil/gas sand maps- Using the net sand maps to calculate the volume of net sandstone in the oil/gas column.

## **Personnel Details:**

Dr John Gregory

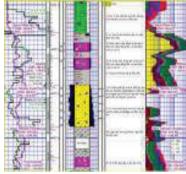
Director/Micropalaeontologist

Dr David Rutledge Director/Nannopalaeontologist Ashleigh Costelloe Director & Stratigrapher

## **PETROLEUM GEOLOGY & WELLSITE SERVICES**



Biostrat JV wellsite geologists are equipped with microscope, UV Box and chemicals for integrated logging while drilling (LWD).



Software integrates drilling, LWD and Gas data to provide timely solutions and make real-time decisions to reduce nonproductive time (NPT).

## **SURFACE GEOLOGY & FIELD MAPPING**

Since our inception, Biostrat JV has been offering surface geology services most notably to clients of the southeastern Caribbean. We boast a large repository of geological map data.



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