

Core-Seismic Correlation and Physical Properties of Slope Sections; Their Link to Diagenesis

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Project Objectives

1. Investigate the relationship between seismic facies, lithology, and physical properties.
2. Assess the reservoir properties in slope sections by correlating the cores from ODP Legs 101 and 166 to the new seismic data set.
3. Examine the reflectivity coefficient of the imaged strata.

Project Rationale

The multichannel seismic survey collected during the CARAMBAR cruise is of higher frequency and resolution than the site surveys conducted in preparation for drilling ODP Legs 101 and 166. The 25 cubic inch air gun images the slope with unprecedented clarity (Figure 1). Because the seismic lines were traced across the ODP dill sites where completely cored wells penetrated strata as far back as the Lower Cretaceous (Site 627), a unique opportunity arises for a refined correlation between the cores and seismic data. This refinement will be best in the sites along the

Seismic Line along ODP Leg 166 Drill Sites

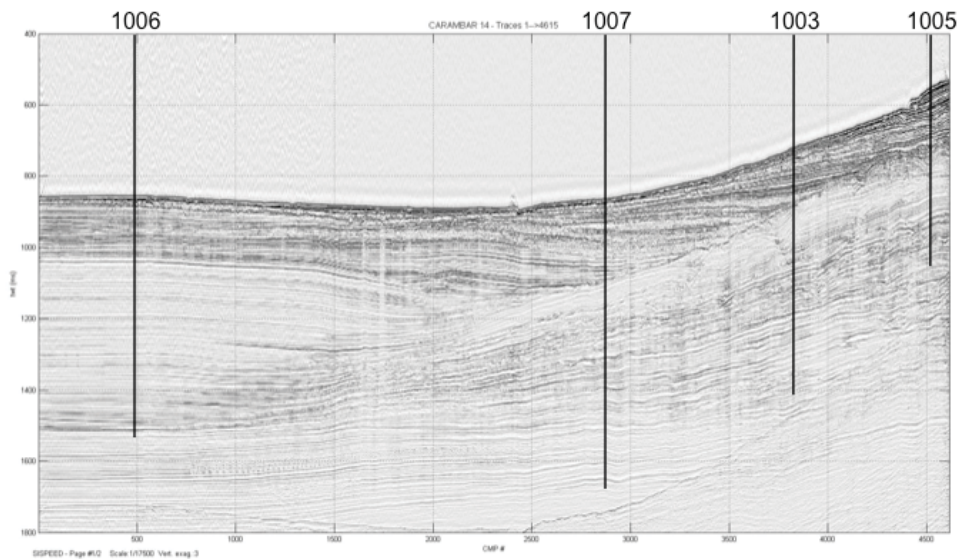


Figure 1: CARAMBAR seismic line a cross the ODP Leg 166 drill sites. The high-frequency acoustic waves penetrated the entire drilled sections into the Oligocene, producing a seismic image of unprecedented clarity along slope of Great Bahama Bank.

Bahamas Transect at the western prograding margin of Great Bahama Bank because, in these sites, a vertical seismic profile was shot after drilling and complete logging suites were run in all of the wells (Eberli et al. 1997). With this refined correlation, we will address some fundamental questions in regards to the control of the reflectivity in these strata and the development of the physical properties.

Scope of Work

The work in this project consists of seismic processing and analysis, and a comprehensive petrophysical analyses. Our colleagues in Marseille and Amsterdam will perform the petrophysical tasks. The CSL will be working with Bruno Marsset from Ifremer on the seismic processing (pre-stack depth migration) and the correlation of the seismic data to the ODP sites of Leg 166.

Key Deliverables

One goal of the project is a refined correlation between the strata of a prograding margin and its seismic signature. This correlation will be the basis for a refined seismic facies and sequence stratigraphic analysis of the slope sections. Although the CSL is not involved in all the follow up projects, we will report on the results of the other tasks performed in France as they become available.

References

Eberli, G. P., Swart, P. K., Malone, M., et al., 1997, Proc. ODP, Initial Reports, 166: College Station, Texas, Ocean Drilling Program.