

SG04**Seismic Attribute Analysis of Deepwater Reservoirs, Offshore East Coast Trinidad**

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Abstract

Amoco Trinidad Gas BV, in a joint venture with Repsol Exploracion Tobago S.A., drilled the El Nino-1 and Sandpiper-1 wells in 1998 and 1999 respectively. These wells were drilled to test stacked Pleistocene-aged Upper Slope reservoirs in the Columbus Basin, offshore Trinidad. Both wells encountered hydrocarbon sands that were predicted pre-drill based on seismic amplitude anomalies.

Seismic amplitude is a direct indicator of hydrocarbon in this area. Strong trough amplitude (top event) and

strong peak amplitude (base event) occur where gas sands were encountered in the wells. Sands with gradational tops and sharp bases result in diminished trough responses but strong peak amplitudes. In these instances, analysis of the peak responses (base events) shows that these reflections are also indicative of hydrocarbon bearing sands.

In addition, AVO modelling strongly suggests, that the most favourable hydrocarbon reservoirs, should generate AVO responses, that lie furthest away from the Fluid Line, on the B0 (intercept) and B1 (slope) crossplots. Analysis of base events, in addition to top events, on these crossplots is useful in interpreting AVO anomalies. B0-B1 crossplots can also be used to quantify the effects of changes in rock and pore fluid properties on seismic amplitude response.

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