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**ABSTRACT**

**TRAPPING STYLES AND PROSPECTIVITY IN THE GULF OF PARIA**

**S. Mohammed<sup>1</sup>, G. Blache-Fraser<sup>1</sup>, M. Jakubowski<sup>2</sup>, M. Curtis<sup>2</sup>, R. Daniel<sup>2</sup>**

<sup>1</sup>*Petro-Canada Trinidad and Tobago Ltd, 11 Albion Street, Port of Spain, Republic of Trinidad & Tobago*

<sup>2</sup>*Petro-Canada, 1 London Bridge, London, SE1 9BG, England*

The Gulf-of-Paria basin, situated off the west coast of Trinidad, has a complex structural and sedimentary history. It is bounded to the north by the Avocado and Gulf Highs, to the east by the onshore Caroni Basin, to the south by the dextral strike-slip Warm Springs Fault and to the west by the Gopa and Domoil Basement Highs. From passive margin tectonic setting in the late Jurassic to present day transtensional pull-apart basin, a number of structural and sedimentary pulses have occurred as the Caribbean Plate moves eastward along the northern margin of the South American plate boundary. The changes in stress regimes and vergences of the plate collision have given rise to compressional, transtensional and transpressional structural features. Combined with the interaction between sediment sources of the Orinoco river system to the south west and the Northern and Central Range uplifts to the northeast and east respectively, the Gulf-of-Paria basin has a wide variety of trapping styles and geometries. These can be structural, combination structural-stratigraphic or solely stratigraphic set up by the major features of the basin's tectonic phases.

Existing discoveries in Blocks 1a and 1b date from 1957 to 1983 and include the Couva Marine, South Domoil, North Marine-5 well, Manicou and Iguana Fields. These encountered a range of fluid types; gas, condensate and oil in numerous reservoir levels mainly from the Pleistocene Talparo Formation, the Mio-Pliocene Manzanilla Formation and the Oligo-Miocene Nariva/Brasso Formations. A total of 25 exploration and appraisal wells have been drilled in the two blocks with a range of hydrocarbon indications and form a key dataset for understanding the remaining prospectivity.

Petro-Canada Trinidad and Tobago was awarded both Blocks 1a and 1b licenses by the Ministry of Energy and Energy Industries in July 2005. Thorough evaluation of the blocks required full area 3-D seismic coverage and during early 2006, approximately 1500km<sup>2</sup> of such data was acquired. The resulting pre-stack time migrated dataset has been integral to understanding the blocks successes and failures.