

Offshore Jamaica - A New Frontier? Unmasking the Potential of the Walton Basin

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The Walton Basin, offshore Jamaica, is underexplored but has significant potential as a new oil and gas province. Jamaica is a country where only 11 hydrocarbon exploration wells have been drilled to date (2 offshore), but 10 of these have had oil or gas shows and there is evidence of onshore hydrocarbon seeps and offshore Satellite Aperture Radar seeps. The 2006 geophysical acquisition program (2D seismic and airborne potential field data) was the first exploration efforts undertaken in the country for nearly 25 years. Previously, without the ability to seismically image beneath the offshore carbonate banks it had not been possible to meaningfully explore the basin. The new data, combined with the extensive and integrated geologic studies, have re-rated the hydrocarbon prospectivity of the Walton Basin, unmasking its potential.

A number of studies integrating the new and vintage seismic data, high resolution airborne potential field data and well data have been completed since 2006. These studies have led to advances and a new understanding of Jamaican geology with respect to the tectonic evolution of the Caribbean and consequently an enhanced knowledge of the petroleum systems within the Walton Basin. The introduction of modern sequence stratigraphic concepts has provided a critical framework for the palaeogeographic assessment of the Walton Basin, placing the basin within the central part of the Caribbean since the Permian age and therefore in close proximity to hydrocarbon rich Venezuela prior to the Cenomanian time. Cuba, Belize and offshore Mexico also continued to be part of the same tectonic entity until the Early Eocene.

Onshore field work, well based studies and geophysical interpretation show thick Recent to Cretaceous (and perhaps Jurassic) sediments providing previously unrecognised reservoir/seal pairs with multiple world class source rock intervals. The island of Jamaica is structurally complex due to the Miocene to recent structural inversion and most (if not all) the 9 onshore exploration wells are significantly off structure at the reservoir target level, however the offshore Walton Basin has the same stratigraphy as the island without the late structuring.

The integrated work flow and play based analysis has delivered new insights into the hydrocarbon potential for the Walton Basin and enabled the identification of over 24 prospects and leads. A "play opening" well is the next step to unmask the potential of the Walton Basin.