

The ZoNéCo 11 Deep Seismic and Wide-Angle Seismic Survey: Contribution to the Petroleum Potential of Western New Caledonia's Exclusive Economic Zone (EEZ)

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The geodynamic history of the Southwest Pacific region has been dominated, since Cretaceous times, by the dismembering of Gondwana which create microcontinental ribbons, (Lord Howe Rise and the New Caledonia–Norfolk Ridge) and sedimentary basins (New-Caledonia and Fairway).

Petroleum potential of New Caledonia Mainland. Onland, Senonian coals (and coaly shales) were identified as source rocks. In 2000, the Cadart-1 well confirmed the existence of an active petroleum system with significant gas shows.

Petroleum potential of New Caledonia Western Offshore Basins (New-Caledonia and Fairway) The offshore potential of Western New Caledonia has recently been appraised through the interpretation of the ZoNéCo 11 deep seismic reflexion and refraction survey. The discovery of the thinned-continental origin of both the Fairway Basin and the Northern New Caledonia Basin has a direct impact in terms of petroleum potential. The thinned-continental Fairway Basin, filled by 3 km-thick deposits, is interpreted as part of the Gondwana block, made of the Lord Howe Rise and the thinned-continental Fairway Basin and Ridge. Moreover, geophysical interpretations enable us to extend the Fairway Basin down to the Taranaki Basin, New Zealand's petroleum-producing basin.

The Northern New Caledonia Basin, with a complex type of crust could be interpreted as a thinned continental basement, part of the Norfolk Block comprising the thinned-continental West Caledonia Basin (west of New Caledonia) and the Norfolk Ridge. In this hypothesis, the petroleum system described onshore can be extrapolated offshore, with Cretaceous tilted-blocks, filled by deposits up to 8 km-thick, as structural traps.