

## Hydrocarbon Potential in Espino Graben, Eastern Venezuela

---

**Takateru Hara**, *Teikoku Oil Co. Ltd, Tokyo, Japan, t\_hara@teikokuoil.co.jp*, **J. Michael Moldowan**, *Stanford University, Stanford, CA*, and **Pieter Pestman**, *Teikoku Oil de Venezuela, C.A, Caracas, Venezuela*.

---

The Espino Graben play is one of future exploration plays in Venezuela. It is situated in the Guarico Sub-basin, Eastern Venezuela. This graben system, which shows a NE-SW trend, is approximately 50km (31miles) wide and extends for more than 500km (310miles) with possibly non-metamorphosed sediments distributed down to around 4 or 5 seconds TWT. Although the system is thought to be filled by Paleo-Mesozoic sediments which suggests that a favorable petroleum system may be present (Audemard and Serrano 2001, AAPG Mem. 74), geological hard data are limited since no deep wells are drilled in the system so far (only in the peripheral portions of the system). Seismic data indicate the presence of fault blocks and inversion structures; the limited well data suggest the presence of both reservoir rocks and seals within the upper section of the graben fill; however, no information is available as to source rocks.

By using Paleozoic grabens in other sub-Andean basins and in the Venezuelan Andes as an analog, the Espino graben is likely to be filled with marine to continental sediments of Lower Paleozoic to Jurassic age, which suggests that favorable reservoir and source rocks may be present. Biomarker and diamondoid analysis of oil samples of shallower existing fields above the graben was carried out in order to get a more reliable estimation of source rocks, timing of migration and expected exploration plays in the system.

---