

## Tertiary Evolution of the Northeastern Venezuela Offshore.

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The Tertiary evolution of the northeastern Venezuela offshore is dominated by Paleogene (Middle Eocene-Oligocene) extension and Neogene transtension, interrupted by Oligocene to Middle Miocene inversions. The pre-Tertiary basement of the northeastern offshore of Venezuela consists of a deeply subducted accretionary complex of a Cretaceous island arc system that formed far to the west of its present location. The internal structure of this basement consists of metamorphic nappes that involve passive margin sequences, and as ophiolites.

The Paleogene extension is mainly an arc-normal extension associated with a retreating subduction boundary. It is limited to La Tortuga and La Blanquilla basins. All of these basins are north of and not directly related to El Pilar fault system. On a reconstruction, these Paleogene extensional systems were located to the north of the present Maracaibo basin.

By early Miocene, the leading edge of the now overall transpressional system

had migrated to a position north of the Ensenada de Barcelona. This relative to South America's eastward migration is responsible for the Margarita strike-slip fault and the major inversions that began during the Oligocene and lasted into the Middle Miocene

The Boconó-El Pilar-Casanay-Warm Springs fault and the La Tortuga-Coche-North Coast fault systems are exclusively Neogene with major transtension occurring during the Late Miocene to Recent. They act independently from the earlier Paleogene extensional system and are responsible for the large Neogene transtensional basins of the area, the Cariaco trough, the northern Tuy Cariaco and Paria sub-basins, and the Gulf of Paria basin.

This latest phase is characterized by strain partitioning into strike slip faults, a trans-tensional northern domain and a transpressional southern domain, which is responsible for the décollement tectonics and/or major inversions of the Serranía del Interior and its associated Monagas foreland structures. Part of the latest phase (Middle Miocene-Recent) is the formation of a large arch that corresponds to the Margarita-Testigos-Grenada zone, which was subjected to mild lithospheric compression during the Pliocene.

### BIOGRAPHICAL SKETCHES

**Raúl A. Ysaccis** is a native of Carupano, Venezuela. In 1989, he received his degree in geological engineering *magna cum laude* from the School of Geology and Mines of the Universidad de Oriente in Puerto La Cruz, Venezuela. He worked for four years as a geologist for Lagoven S.A. before starting his postgraduate work at the Department of Geology and Geophysics of Rice University in 1993. He obtained his Ph.D. from Rice in the fall of 1997. He has returned to Venezuela to continue working with Lagoven S.A. Raúl is interested in all aspects of petroleum geology and his main ambition is to contribute to the discovery and development of the hydrocarbon resources of his native country.

**Bert Bally** received his Ph.D from the University of Zurich in Switzerland. Between 1954 and 1966 he worked for Shell Canada. Between 1966 and 1968 he was Manager of Geological Research for Shell Development in Houston. From 1968 to 1981 he was first chief geologist and later senior exploration consultant for the Shell Oil Co. Between 1981 and 1996 he was at the Department of Geology and Geophysics at Rice University where he held the Harry Carothers Wiess Chair. He now is retired but still active working with students and as a consultant to several oil companies.

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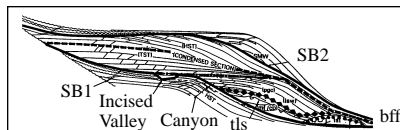
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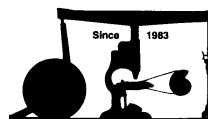
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