

Offshore extension of structural trends into the western Gulf of St. Lawrence

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A compilation of industry reflection data and the 1986 deep seismic reflection data enabled us to delineate structural trends in the Gulf of St. Lawrence. These structures can be linked to the onshore geology of New Brunswick and the Gaspé Peninsula using seismic, gravity and magnetic data.

In the southwestern part of the Gulf a series of structural highs and lows, separated by northeast-southwest-oriented faults, are identified. Two significant fault zones, bounding a pre-Windsor Group basin, are mapped and interpreted to be extensions of the Fredericton and Belleisle faults. These structural trends are abruptly truncated by a NW-SE-oriented structural boundary passing through the southern part of the Magdalen Islands. East of Miramichi Bay another pre-Windsor Group basin is terminated to the north by the same NW-SE structural boundary. The boundary is characterized by a change in struc-

tural style on the seismic sections and by an elongate positive gravity anomaly. The boundary may correspond to the location of the newly postulated "Canso Fault" (McCutcheon and Robinson, 1987; and others).

North of the boundary is a region generally lacking basement reflections. Basement reflections are identified further north, where high amplitude reflections dip to the northeast from about 3 to more than 4 seconds, two-way-travel time. The data suggest that these reflections can be interpreted as a detachment between the reflection-poor basement and another basement block to the north. The trace of the detachment parallels the Appalachian Structural Front, suggesting that it is related to Taconic or Acadian thrusting of sediments of the ancient North American continental margin.