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## **Proto-Oceanic Crust: How Does it Influence Deep and Ultra-Deep Water Exploration Offshore Eastern Canada, Greenland, Iberia and Northwest Africa?**

The North Atlantic Basins Analysis (NAMBA) project has mapped areas of apparent oceanic crust, which have characteristics that are not those of pure oceanic crust. Neither are they extended continental crust. This crust has been described as "Proto Oceanic Crust" (POC) by Dickson and Odegard (2000), and others.

The NAMBA project integrated seismic, well, gravity, magnetic and topographic data into a Geological Information System (GIS). Results of this integration have shown that the POC has a distinctive gravity and/or magnetic signature. As described by Odegard and Dickson (2001), on seismic sections, POC typically shows an architecture of tilted fault blocks and on lapping fill. Depending upon the area POC appears to be either volcanic material, abducted mantle, separated continental fragments, or a combination of these materials. Emplacement can occur at or near sea level, in regions of restricted lacustrine to oceanic circulation, or open marine environments. The type of material, timing, emplacement mechanism, and depositional environment determines how prospective these areas are for hydrocarbon exploration. This is particularly true in deep and ultra-deep water areas. Of particular importance is the magnitude of heat flow during and after emplacement.

Offshore areas of the North Atlantic are examined in this context. These areas include offshore Nova Scotia, Newfoundland, Labrador, Greenland, the Iberian Peninsula, and the MSGBC basin. Prospectivity in these areas ranges from Wow to Bow-Wow.